SUMMER SPEAKERS

10 OUTDOOR SYSTEMS
FACE OUR PATIO CHALLENGE

21 WAYS
TO IMPROVE YOUR
HOME THEATER

HOW TO
CHOOSE A NEW CD PLAYER
Bad news.

Adcom’s GFA-555II is no longer made.
Adcom’s new GFA-5500 continues the legend.

The Adcom GFA-555II power amplifier has been legendary among audiophiles and serious music listeners. It set the standard for high end sound at reasonable cost, consistently being compared to amplifiers costing two and three times as much. Now, after years of evolutionary development, its successor is available.

The new GFA-5500 provides 200 watts per-channel continuous at any frequency from 20 Hz to 20 kHz at 8 ohms. It continues the Adcom tradition of delivering high current into low impedance loads that results in extraordinarily pure, clean, musical sound reproduction. But the big news is its use of the newest hybrid MOSFET transistors, HEXFETS. These all-new devices permit a more efficient circuit board design that leads to shorter power paths for improved sound. And the really good news is that while providing all the punch and muscle of MOSFETS, they have a remarkable ability to sound as sweet as tubes.

So while audiophiles the world over may be sad to see the end of the legendary GFA-555II, music lovers everywhere can look forward to hearing the sweet power of the GFA-5500. Visit your Adcom dealer and listen. You will hear the details that make a difference.
June 8

Wandered out into the road.
Heard music pounding.
Figured I had time to cross.
Didn’t.

PIONEER SUBWOOFERS. Nothing says “move it or lose it, varmint” like raw bass pouncing out your window. Our subwoofers are designed with specially blended materials to handle up to 450 watts of pure power. They also come in a variety of car-friendly shapes and sizes. So, go ahead and put a ton of bass in your system. And give nature a chance to dig that crazy beat. Call 1-800-PIioneer for a dealer near you.
Acoustic Research invented the modern home loudspeaker in 1954.

For over forty years, they have been the leader in bookshelf loudspeaker design, technology and sound reproduction.

To this day, you can not buy a better loudspeaker for the money.

AR loudspeakers are designed for optimum performance in real world use.

Their sound patterns are designed to interact with the boundaries in your home – doors, bookshelves, walls, furniture – so they are less particular as to their exact placement.

Their wide baffle design and exposed dome drivers produce a wide and consistent sound field, resulting in a proper tonal balance from more listening positions throughout the room.

Due to their true acoustic suspension technology, they produce stunningly powerful and accurate bass from relatively small cabinet enclosures.

They are high-value, no compromise loudspeakers engineered with the essential materials and technology needed to reproduce superior sound.

We wrote the book on the bookshelf loudspeaker.

No company in the history of audio has done more to improve the sonic accuracy of musical reproduction in the home than Acoustic Research.

For forty years, AR's sound philosophy has centered on the belief that technical innovation would only be incorporated for the benefit of tonal accuracy - not at its expense.

AR's design philosophy remains to this day, to focus and improve on the fundamental speaker technology needed to reproduce music as accurately and beautifully as the original source.

For AR, this means flat frequency response, wide dispersion, low distortion, high power handling.

Exceptional bass extension.

Musicality.

AR began its journey to capture sonic accuracy in 1954 with the introduction of acoustic suspension technology, an innovation which truly revolutionized the audio industry. Prior to AR's acoustic suspension design, loudspeaker technology primarily utilized some form of vented or baffled enclosure where a mechanical spring force was applied to the moving cone to return it to its resting position. This spring force tended to become increasingly non-linear in its action as cone movement increased from either higher output levels, lower frequency, or both.

In order to reproduce lower bass at higher output, large woofers were needed, resulting in larger cabinets. In addition, the large cones became more massive, and in order to maintain reasonable efficiency without an enormously costly magnet structure and voice coil assembly, cones had to be designed with low density. The net result was the loss of stiffness which resulted in driver break-up and uneven frequency response with resonance, thus trading one form of distortion for another.

AR's solution was the revolutionary AR-1, the first loudspeaker to use the air compressed inside the sealed enclosure to control the excursion (movement) of the woofer. The woofer was given a very "soft" mechanical suspension, including the now legendary "half-roll" surround. The voice coil and magnet pole piece were redesigned for long excursion while a very stiff cone was fabricated for rigid, piston-like action. The woofer was then mounted in an air-tight enclosure. The trapped air within the speaker cabinet exerted consistent pressure on all points of the woofer to precisely and evenly control and dampen the woofer movement. The result of this acoustic suspension design was reduced distortion and greater bass response in a substantially smaller speaker enclosure.

(Story continued at your AR dealer)
Five of the ten outdoor speakers we tested in "The Patio Challenge" (page 58): clockwise from top, the Pioneer CSL-70E, NEAR AEL-1.4, JBL ProMAW, Bose Model 111AW, and Polk Audio AW/15. The lawn sprinkler and garden hose are from Smith & Hawken.

Photograph by Dan Wagner
Weatherproof Music. Factory-Direct Prices.

The smooth, natural sound of speakers by Henry Kloss (founder of AR, KLH & Advent) can now be enjoyed outdoors: on the patio, by the pool, even on boats. The Outdoor is a compact, water-resistant speaker with accurate, wide-range sound. It comes in two versions: one free standing (shown above, $27999 pr.); one for in-wall mounting ($32999 pr.). Both versions are very well made, with stainless steel hardware and gold-plated connecting terminals. Use them in white, or paint them any color. Our speakers are available only Factory-Direct and through cost-efficient Best Buy stores nationwide.

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AUTOSOUND: A BIG BIZ

So you think car stereo stuff is small potatoes, eh? Think again. U.S. sales of mobile audio gear — including in-dash cassette and CD players, CD changers, speakers, and amplifiers — are expected to top $5.3 billion this year, according to the Electronic Industries Association. Audio equipment installed by automakers represents 60 percent of this total; more than 95 percent of domestic cars roll off the assembly line these days with a stereo system of some kind. As for the $2.2 billion worth of car stereo components expected to be sold at retail this year, the EIA anticipates sales of in-dash CD players to shine, with a 25-percent increase over last year. Car CD sales continue to climb — one in ten U.S. households already owns at least one in-dash CD player and one in twenty a car CD changer.

JVC JAZZ

The 1995 JVC Jazz Festival New York will be held from June 23 to July 2. JVC Jazz World-wide will feature events in Paris, Rome, Turin, London, The Hague, and Newport, R.I. In the United States, JVC Jazz on Tour includes events in Atlanta, Chicago, Dallas, and Hollywood. For information or a Festival brochure call 212-787-2020 or write to JVC Jazz Festival, P.O. Box 1169, Ansonia Station, New York, NY 10023.

This year the National Arts Club, based in New York City, created a new award, the Governors Medal for Patrons, for corporations and individuals who support the arts. The first recipient of the Medal is JVC, honored for bringing the JVC Jazz Festival to American culture.

DSS SALES SOAR

Noting that it took four years for the compact disc to crack the million-unit sales mark and eight years for the compact disc to reach a new high in 1994, the Electronic Industries Association. Audio equipment and speakers, and possibly other components. ... Sales of consumer audio equipment reached a new high in 1994, topping $8 billion wholesale, according to the Electronic Industries Association. The figure includes aftermarket car stereo and portable components.

A/V DIGEST

The winner in the sound category of Discover magazine’s sixth annual Discover Awards for Technological Innovation was the ingenious Bose Auditorium, a computer system that enables engineers to use architectural spaces to actually hear how a building, such as an auditorium or airport concourse, will sound before it is erected — and to adjust the acoustics in the space. Among the finalists were Snell’s Digital Room Correction System, Yamaha’s Silent Series pianos, and SRS Labs’ Vivid 3D Sound Retrieval System. ... Mitsubishi plans to re-enter the audio market next year with a line of A/V receivers, amplifiers, speakers, and possibly other components. ... Sales of consumer audio equipment reached a new high in 1994, topping $8 billion wholesale, according to the Electronic Industries Association. The figure includes aftermarket car stereo and portable components.

NET SURFING


BESTSELLERS

The RIAA announced that the value of domestic shipments of prerecorded music and music videos exceeded $12 billion in 1994, a record 20 percent increase over the previous year. RIAA figures also reveal that Garth Brook’s “No Fences” has sold 13 million units, the all-time high for a country album. Combined sales of Brook’s RIAA-certified titles now exceed $1 million.
With Cinema DSP, you'll be amazed at what comes out of the woodwork.

Bats screech overhead. Wolves howl in the distance. And footsteps crunch across your living room floor.

No, it's not your imagination. You're hearing sounds placed around the room, just as the director intended.

All courtesy of Yamaha Cinema DSP. The home theater technology that gives dialogue more definition. Music, more dimension. And sound effects, more graphic detail.

Only Yamaha Cinema DSP creates phantom speakers that fully replicate the experience you get in multi-speaker movie theaters. It sounds so real, in fact, you'll swear you hear sounds in places you don't even have speakers.

As you might imagine, a breakthrough like this is no small feat. It's accomplished by multiplying the effects of Digital Sound Field Processing and Dolby Pro Logic.

Digital Sound Field Processing is Yamaha's unique technology that electronically recreates some of the finest performance spaces in the world. And Dolby Pro Logic is the technology responsible for placing sound around the room, matching the dialogue and sound effects with the action on the screen.

Together, these two technologies allow Yamaha to offer a complete line of home theater components that outperform other comparatively priced products on the market.

Stop by your local Yamaha dealer for what could be a very eerie demonstration. Maybe we can't talk you into a system, but that doesn't mean we can't scare you into one.

For the sales location nearest you, call 1-800-4YAMAHA.
TROUBLESHOOTING

Daniel Kumin's article on A/V system troubleshooting in June was great! Thank you. After reading it, even the most non-carpenter "can't fix anything" bumpkin with ten thumbs should at least have the gumption to look for what's wrong with his equipment without fear of causing an earth-shattering cosmic meltdown — instead of taking the (probably not broken in the first place) equipment to some fly-by-night repair emporium that will charge a princely fee for replacing a 25¢ fuse. I have given copies of the article to many of my friends, and they love me for it and have put it to good use.

ROB SARGENT
Brooklyn, NY

EAD's AC-3 TheaterMaster

We appreciate David Ranada's comprehensive review in June of the TheaterMaster, the world's first high-end digital-to-analog (D/A) converter with AC-3 surround-sound decoding. We are gratified that he found the TheaterMaster to be "loaded with outstanding audio performance and exceptional versatility.

Regarding his comments about the TheaterMaster's ergonomics, it's true that some of the setup procedures are not intuitive, but we'd like to point out that these functions are meant to be implemented one time only, when you first install the TheaterMaster in your system. After setup, daily use of the TheaterMaster is as simple as turning the unit on, selecting the desired input, and adjusting the master volume control. Anyone can operate it, even without seeing the manual.

Finally, regarding AC-3 playback, we share Mr. Ranada's view that "if you hear one new audio technology this year, it must be Dolby Surround AC-3." But since his impression of AC-3 was formed using the TheaterMaster, it is important to note that AC-3 will not sound the same in all implementations. The TheaterMaster is a high-end component, incorporating some of the finest materials available and a no-compromise design philosophy. Not all AC-3 decoders will sound like the TheaterMaster.

BEN GOSSIG
General Manager
Enlightened Audio Designs
Fairfield, IA

HEARING LIMITATIONS

After reading Julian Hirsch's "Unrealistic Expectations" in May ("Technical Talk"), I thought about my experiences with stereo equipment, especially speakers, over almost twenty years. I listened to dozens of different models in various price ranges. None of them sounded "right"; all but two seemed to have little bass, lots of midrange, and no treble, no matter what the listening environment. I wondered what was wrong.

Then one day, when I started a new job, I took a required hearing test. Imagine my shock at finding that the frequency response of my ears is only 100 Hz to 5 kHz, with nothing at all below or above those limits — the result of a youth filled with circular saws, electric drills, and gasoline-powered lawn mowers, and a summer factory job without ear protection eighteen years ago.

I'm not advocating hearing tests for all audiophiles, but as far as "unrealistic expectations" go, it doesn't matter how much money one may be willing to spend in pursuit of perfection if one's own ears can't tell the difference between "low-fi" and "hi-fi." At least now I'll save money not buying high-end equipment.

DENNIS A. WATTS
Westfield, MA

Digital Home Theater

I enjoyed Michael Riggs's article on the evolution of home theater systems ("Digital Surround Comes Home," May), but I don't understand why there was no mention of Home THX. I'm still not clear on the difference between Dolby Pro Logic and THX.

CHRIS BURNS
Rockford, IL

Home THX controllers apply specific additional processing to the outputs of a surround decoder, which could be either Dolby Pro Logic or Dolby Surround AC-3. The processing is designed to make the sound a closer match to that heard by the engineers who mixed the soundtrack. Thus, every current Home THX controller or receiver includes a Dolby Pro Logic decoder that is active whenever the THX Cinema mode is engaged. For a complete explanation of Home THX, see Tomlinson Holman's article in our April 1994 issue.

NICK LOWE

Ron Givens (May "Popular Music" reviews) should give Nick Lowe's "The Impossible Bird" another listen. Lowe has teetered on the edge of country in the past, and this time he's jumped in all the way, exhibiting an outstanding country voice. I admit that at first listen it's kind of like having someone put pizza in your mouth when you were expecting ice cream, but that doesn't mean it isn't great pizza. Lowe's versatility is an asset — how can Mr. Givens fault
"One System. Movies and Music."

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"You want your home theater system to perform as well with music as it does with movies. In fact, you've told me that you will continue to spend more time listening to music than watching movies. So to create the ultimate home theater, I started with the LS90 loudspeaker, recognized for its audiophile-quality music performance. Through innovative technologies, I can now give you that same level of sound quality in the center speaker, the surround speakers and the powered subwoofer. Outrageously exciting home theater and audiophile quality performance at affordable prices. One system. Movies and music." Matthew Polk

A. The LS90s. Here's a sampling of what Audio Magazine's Anthony Cordesman said, "...an exceptional ability to resolve complex dynamic passages...precisely the kind of full-range speaker that today's buyers need."

B. The CS350LS. The ultimate center channel speaker is timbre-matched to the LS90s for a seamless, wall-to-wall soundstage and startling true-to-life sound.

C. The PSW200 powered subwoofer. Uses revolutionary patented technology to give you maximum bass in an enclosure small enough to fit into your furniture.

D. The LS f/x. The only high performance surround speaker that allows you to switch between bipole and dipole to customize performance to fit your needs.

For more information on the LS Home Theater/Audio System, call 1-800-377-POLK or dial our toll-free dealer locator to find your nearest authorized Polk dealer. Audition the ultimate—One system. Movies and music.
Onkyo introduces the next generation of Home Theater receivers and amplifiers equipped with the new Motorola 56004 Symphony DSP chip.

The chip's 24-Bit data path makes it far superior to the 16-Bit formats of other DSP processors. Running at 50 MHz, the 56004 DSP can execute 25 million instructions per second (MIPS) using three separate buses to access commands and data simultaneously. This makes it the ideal digital engine not only for today, but for the future of digital sound as well.

The integrity of the Motorola 56004 Symphony DSP is assured by the high quality design of Onkyo components. Oversized transformers, individual power supplies, discrete output stages, and full digital Dolby Pro Logic decoding all combine to deliver flawless reproduction of the most complex soundtracks.
AUTHENTIC "Messian"  
Jamie James, in his review of a King's College Choir recording of Messiah (April), complains that "for a while it seemed as though the soprano arias were irrevocably lost to countertenors, who are about as authentic for Messiah as synthesizers." I know that countertenor Randall Wong has performed Messiah, but I don't believe he has recorded it. Actually, I don't know of any recorded Messiah with a countertenor singing the "soprano" solos. Perhaps I need to get out more.

Also, in classical "Quick Fixes" (same issue), Mr. James states that soprano Nancy Argenta is British. She is Canadian.

GARY A. DAY  
Saskatoon, Saskatchewan

IS DAT HERE TO STAY?  
In the April issue I noticed the absence of any mention of DAT decks in either "New Products" or "CES Showstoppers." You did mention MD and DCC, however.

Is DAT here to stay, and is it a popular system? I am considering the purchase of a DAT deck to replace an open-reel tape deck for recording jazz programs from FM radio. DAT's high quality and 2-hour playing time are important considerations. Is the DAT format a worthwhile investment, or is it becoming obsolete? JAMES A. RUSSELL, JR.  
Dunbar, WV

Although new models come along relatively infrequently, DAT is very well entrenched, especially in professional audio. We don't think you need to worry about its disappearing anytime soon.

FINDING GEORGE SHEARING  
Where can I purchase the five-CD boxed Mosaic Records set, "The Complete Capitol Live Recordings of George Shearing," that Chris Albonson reviewed in April? I have been unable to find it in the major local record stores.

GALVIN CHAN  
San Jose, CA

It can be ordered directly from Mosaic at 35 Melrose Pl., Stamford, CT 06902; telephone 203-327-7111.

CORRECTION  
The Niles OS-10 indoor/outdoor speaker system, reviewed in the June issue, is available in black as well as white.

We welcome your letters. Please address correspondence to Editor, Stereo Review, 1633 Broadway, New York, NY 10019. You should include your address and telephone number for verification. Letters may be edited for clarity and length.

Which is important if you're a T-Rex

Okay, what does all that stuff on the left mean in your living room? For starters, it produces the most three-dimensional soundfield you've ever experienced. Greater processing capacity translates into more dynamics, more reflections, more reverberations—parameters that define how real everything will sound. At the same time, you'll be able to control more of the factors exclusive to your Home Theater—room size, ambiance, equalization, time delay, etc. All of which are extremely important when a T-Rex, Harrier jet, or a runaway bus drops by to visit.

Never before has such realism been available in a Home Theater. See your Onkyo dealer today.
30 Years Ago

In his July 1965 editorial, William Anderson described the music he'd heard on an excursion to the New York World's Fair — Spanish flamenco, Polynesian songs and dances, a German brass band, Carribean calypso. "We should all be prepared to discover and enjoy many more kinds of music than we usually restrict ourselves to," he concluded.

New products this month included the Kenwood TK-80 80-watt receiver, with a frequency response of 20 to 60,000 cps [Hz] ±1 dB, the Uher 9000 stereo tape deck, and Microtran's HD-15 bulk tape eraser. In the cover story, Julian Hirsch and Gladden Houck examined eight new stereo phono cartridges. Houck Labs looked into Concord's CD-1000 cassette deck, whose sound was described as "above reproach."

20 Years Ago

For July 1975, Peter Sutheim and Larry Klein picked twenty-five stereo demonstration records. Among their favorites: Fritz Reiner's RCA disc of Strauss's "Also Sprach Zarathustra."

Nowhere Man: Reviewing "The Early Beatles," critic Gene Lees wrote, "They sound like an imitation of an American rhythm-and-blues or rock-and-roll group, and a pretty dull one at that."

Among the new products this month were Advent's Model One speaker system and the Koss Phase/2+2 four-channel headphones, which gave "a remarkable 'surround-sound' effect."

In Best of the Month, Richard Freed endorsed pianist Jean Philippe Collard's performance of Fauré's "Nocturnes" on Connoisseur Society ("a distinguished release").

Goring the Ox Department: In Letters, reader Thomas Magee, of Mission Hills, California, took exception to Steve Simels's tongue-in-cheek comparison of jazz great John Coltrane to "a second-year sax student wasted on Seconal," noting that "Mr. Simels had said 'pre-1967 Pharoah Sanders,' it would have been a different story."

10 Years Ago

As part of the issue's CD theme, Daniel Sweeney offered an overview of the history and likely future of compact disc technology. In companion features Fred Petras examined a variety of second- and third-generation players, and David Ranada discussed the advantages and disadvantages of their digital and analog output filters. New products previewed included Radio Shack's Archer Video/Audio control center, for switching between up to six audio and video components, and Sansui's SV-M125 color video monitor/receiver with a high-resolution 25-inch picture. Test reports included the Rich Acoustic 7B speaker system and Sony's CDP-520ES CD player, which Julian Hirsch called "a top contender in a crowded field."

Coming soon — Madonna Unplugged at the Gap? Reviewing "Wham! The Video," critic Louis Meredith dismissed it as another example of "the trend toward blurring the distinctions between rock videos and commercials for designer clothing."

— Steve Simels

Sony's CDP-520ES, 1985

Microtran's HD-15, 1965
Paradigm's spectacular bipolar speakers are an engineering and sonic marvel! With years of design expertise and our highly advanced R&D facility, Paradigm engineers and acousticians set out to build the world's finest bipolar speakers, regardless of cost!

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"Stunning!"
- The Inner Ear Report on the Esprit/BP

"Awesome!"
- Audio Ideas Guide on the Eclipse/BP

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Combine any of our bipolars with our Ultra-Clear™ center channels, amazing AJP™ surrounds and astounding P! powered subwoofers for the absolute finest in home theater!

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NEW PRODUCTS

**McINTOSH**

McIntosh's MR7084 AM/FM tuner features a selectable Spatial circuit that's designed to produce a stereo effect from mono AM and weak FM signals and to widen the stereo image from strong FM signals. You can store fifty AM or FM presets in memory and cycle through them by hitting the Review button, which engages a scan mode. Channel separation in FM is given as 50 dB. Price: $1,300. McIntosh Laboratory, Dept. SR, 2 Chambers St., Binghamton, NY 13903-2699. • Circle 120 on reader service card

**BOSE**

Designed for use with sound-card-equipped computers, Bose's MediaMate powered speaker system comprises two 7 1/2-inch-tall enclosures, each of them housing a magnetically shielded 2 1/2-inch driver. One of the platinum-colored cabinets also contains a stereo power amplifier with two inputs, a master volume control, a mix control (for blending two sources), and a headphone jack. Price: $339 a pair. Bose, Dept. SR, The Mountain, Framingham, MA 01701-9168. • Circle 122 on reader service card

**MARTIN-LOGAN**

Martin-Logan's 64-inch-tall SL3 speaker uses an electrostatic diaphragm — a clear polyester-film membrane sandwiched between two conductive perforated-metal panels — to reproduce frequencies above 250 Hz and a 10-inch woofer in a sealed enclosure to handle frequencies below that point. Frequency response is given as 30 Hz to 24 kHz ±2 dB, horizontal dispersion as 30 degrees, sensitivity as 89 dB, and power-handling capability as 200 watts. Price: $3,195 with frame in oak (shown) or black; other finishes are available at extra cost. Martin-Logan, Dept. SR, P.O. Box 707, Lawrence, KS 66044. • Circle 121 on reader service card

**NUREALITY**

Using patented Sound Retrieval System (SRS) technology licensed from SRS Labs, NuReality's Vivid 3D Theater processor is said to create a three-dimensional effect with only two speakers as well as enhancing the realism of multi-channel Dolby Pro Logic surround playback. Both mono and stereo sources can be processed. A Space control adjusts the apparent width and depth of the sound field, and a Center control emphasizes the vocals or dialogue. Price: $249. NuReality, Dept. SR, 2907 Daimler St., Santa Ana, CA 92705-5810. • Circle 123 on reader service card

STEREO REVIEW JULY 1995
**NEW PRODUCTS**

**FULTRON**
Fultron's MX300 car amplifier is rated to deliver 150 watts per channel into 4 ohms or 240 watts per channel into 2 ohms, both continuous. Output in bridged mono mode is 300 watts into 4 ohms. The MX300 has a low-pass filter that's continuously variable from 40 to 150 Hz, a 120-Hz high-pass filter, and bass and treble controls. Price: $440. Arthur Fulmer, Dept. SR, P.O. Box 177, Memphis, TN 38101-9988. *Circle 124 on reader service card*

**NAPA VALLEY**
Napa Valley's modular Rocket 2 storage unit, made of Radiata pine with a linseed-oil finish, holds up to 280 CD's or 112 videotapes. The ready-to-assemble kit consists of two stackable Rocket 1 units, each of which has two adjustable shelves. Assembly requires only the supplied Allen wrench and screws. Price: $70. Rocket 1 units are available separately for $40 each. Napa Valley Box Co., Dept. SR, 11995 El Camino Real, Suite 300, San Diego, CA 92130. *Circle 126 on reader service card*

**ROCK SOLID SOUNDS**
The Home Cinema Monitor (HCM) series from Rock Solid Sounds includes the 8-inch HCM 2 ($99) and 9-inch HCM 1 ($199 with stand) two-way front/surround speakers and the 14-inch-square Solid Power Bass subwoofer ($399), which packs a crossover and a 70-watt amp and is rated down to 38 Hz. The HCM 1 and HCM 2 come in black or white. Rock Solid Sounds, Dept. SR, P.O. Box 8, North Reading, MA 01864-0008. *Circle 125 on reader service card*

**CARVER**
Carver's A-400x THX-certified two-channel power amplifier is rated to deliver 200 watts per channel into 8 ohms, 300 watts per channel into 4 ohms, or 600 watts into 8 ohms in bridged mono mode (all with less than 0.2 percent distortion). Dynamic headroom at 1 kHz (8 ohms) is given as 2 dB. Rack handles are optional. Price: $485. Carver, Dept. SR, P.O. Box 1237, Lynnwood, WA 98046. *Circle 127 on reader service card*

**H45 TECHNOLOGY**
With H45's battery-powered CD-FM stereo transmitter, you can play a portable CD player through any FM radio — home or car — without running wires. Just plug it into the player's headphone jack and tune the radio to one of ten frequencies to pick up the signal. Available for $39.95 (plus $3 shipping) from H45 Technology, Dept. SR, 415 Clyde Ave., Suite 106, Mountain View, CA 94043, 415-961-9114. *Circle 128 on reader service card*
Win a trip on Northwest Airlines to see the 1996 JVC Jazz Festival in London, Paris, Rome and The Netherlands, plus a 1996 Subaru SVX LSi!

TO ENTER: Call 1 800 JVC-WINS.

Call 1 800 JVC-WINS. Get a personal Match & Win number. Bring your number to any participating JVC retailer, and compare it to the JVC Jazz Festival Display. If your number matches, you've won the European Holiday and the new, 230 hp, Subaru.

There are over 1,000 other prizes... TVs, Stereos, and lots more!

Call now. You could be an instant winner. Or bring this entry form to your nearest JVC retailer.

Hurry! All calls and entries must be received by August 21, 1995.

GRAND PRIZE (1)

A trip on Northwest Airlines to the 1996 JVC Jazz Festival in London, Paris, Rome and The Netherlands and a 230 hp, Subaru SVX. The 8-day, 7-night trip for two includes airfare, hotel, VIP passes, an autographed Fender guitar, and more. Approx. retail val.: $41,000.

FIRST PRIZE (4)

A JVC Home Theater including TV, VCR, complete Stereo System. Approx. retail val.: $3,379.

SECOND PRIZE (30)


THIRD PRIZE (50)


FOURTH PRIZE (1,000)

JVC Jazz Festival Commemorative T-shirt. Approx. retail val.: $25.

OFFICIAL 2ND CHANCE SWEETSTAKES ENTRY FORM

(Please print, and bring to your nearest JVC retailer)

Name:
Address:
City: State: Zip:
Home phone #: 

SUBARU

NORTHWEST AIRLINES

No purchase necessary. Void where prohibited. Sweepstakes open to legal U.S. residents, 18 years of age or older, except employees and immediate family members of JVC, its subsidiaries and agencies involved in the promotion. Sweepstakes subject to Official Rules, available by sending a self-addressed, stamped envelope to JVC Jazz Festival Sweepstakes Official Rules, P.O. Box 5463, New Milford, CT 06776-5463. For prize list, send a self-addressed, stamped envelope to JVC Jazz Festival Official Rules, P.O. Box 5463, New Milford, CT 06776-5463. Odds of winning any prize depend on number of entries received. OH/MI residents only may obtain a list of winners, by sending a self-addressed, stamped envelope to JVC Jazz Festival Winners List. P.O. Box 5463, New Milford, CT 06776-5463. The sweeps is void in PR. © 1995 JVC Company of America. Elmwood Park, NJ 07407.
NEW PRODUCTS

MTX
MTX's PSW-101B powered subwoofer combines a 12-inch driver, an adjustable two-way crossover, and a 100-watt amplifier in a 16½ x 18 x 18¾-inch cabinet finished in black ash veneer. It accepts low-level inputs and has a phase switch and an output-level control. Bandwidth is given as 36 to 150 Hz. Price: $400. MTX, Dept. SR, 4545 E. Baseline Rd., Phoenix, AZ 85044.

• Circle 129 on reader service card

HIFONICS
Hifonics offers six versions of its Atlantis Series I car speaker kit, each featuring two woofers with grilles and trim rings, two 1-inch soft- or aluminum-dome tweeters with hardware for surface or flush mounting, and two computer-aligned passive crossovers. Shown is the HSDK4 kit ($315) with 4-inch woofers; rated bandwidth is 180 Hz to 25 kHz, and power-handling capability is 60 watts. Hifonics, Dept. SR, 501 Broad Ave. S., Ridgefield, NJ 07657.

• Circle 131 on reader service card

SAMSUNG
Samsung's VR-8905 four-head VHS Hi-Fi VCR is one of the first equipped to receive the StarSight on-screen program guide, available in 98 percent of American homes for a monthly fee. The service displays a colorful grid listing seven days' worth of TV-program details and facilitates one-touch recording and one-button access to on-air programs, among other features. Price: $549. Samsung, Dept. SR, 105 Challenger Rd., Ridgefield Park, NJ 07660-0511.

• Circle 130 on reader service card

RUARK
Ruark's Paladin speaker teams a 1-inch fabric/silk-dome tweeter, an 8-inch magnesium-basket woofer, and a second-order crossover in a 35-inch-tall bass-reflex cabinet finished in walnut, oak (as shown, but with beige grilles), or black ash wood veneer. Low-frequency limit is given as 38 Hz, sensitivity as 90 dB, and power-handling capability as 150 watts. Price: $2,500 a pair. Ruark, distributed by Audio Influx, Dept. SR, P.O. Box 381, Highland Lakes, NJ 07422-0381.

• Circle 133 on reader service card

APOGEE
Available in a vertical or horizontal (center-channel) configuration, Apogee's 24 x 9 x 11½-inch Ribbon LCR speaker combines a 4-inch corrugated-ribbon tweeter, two 6½-inch woofers, and a first-order crossover in a ported cabinet finished in black ash (shown) with a black fabric grille. Premium oak and mahogany finishes are also available. Low-frequency limit is given as 45 Hz, sensitivity as 89 dB, and maximum power handling as 200 watts. Price: $800. Apogee Acoustics, Dept. SR, 35 York Ave., Randolph, MA 02368.

• Circle 133 on reader service card
JVC's new Triple Tray feature makes changing the music in our RC-XC1 Portable 3-Disc CD Changer as easy as changing your mind. Triple Tray's front-loading operation gives you clear access to all your CDs, letting you replace up to 2 discs while one keeps playing. That means there's always non-stop music, even when you stop to change CDs. Triple Tray makes the RC-XC1 the easiest, fastest CD Changer you can find in a portable package.

Along with unmatched convenience, the RC-XC1 features a 1-Bit D/A Converter that's an example of JVC digital audio technology at its finest. So change not only comes easy, it sounds better too.
Metamorphosis

In 1915, the mathematician E. T. Whittaker devised an extraordinarily interesting proof. He demonstrated how a band-limited function can be completely reconstructed from samples. His work, which was published in the Proceedings of the Royal Society of Edinburgh, minutely redirected the course of an embryonic technology. Eighty years later, that technology is a giant. And it is colliding with another technological giant with a force that is irrevocably changing both of them, and the rest of the world as well.

The very abstract principle Whittaker devised was seized upon by engineers and applied to the problem of sending signals and storing information. Nyquist and Shannon, for example, showed how audio signals could be digitized, then processed, transmitted or stored, and reproduced with great accuracy. Their work advanced analog audio technology over the magic threshold and into the realm of digital audio.

The advantages of digital audio are evident to anyone who has ever listened to a compact disc. But audio CD’s are deceptively simple and do not nearly reveal the dramatic changes that digitization will ultimately bring to audio technology. Specifically, once audio is digitized, it becomes data, and the recorders and players that process that data are, of course, computers. When the distinction between audio hardware and computer hardware vanishes, and when audio, previously a hardware-based technology, is brought into the software domain of computing, the opportunities multiply. The two technologies blend and share inventions, and the smaller audio industry gains access to the logistics of the computer industry’s R&D. In other words, as far as audio is concerned, it’s a whole new ball game.

The audio compact disc improved on the long-play record in the same radical way that the wheel improved on walking. More than just a replacement, it opened up entirely new possibilities. A CD can store any kind of digital information, and lots of it. The CD-ROM, now a fixture in most home computers, has triggered an entire multimedia revolution. It reinvented the way information is archived and published, and it created a new entertainment industry. The Lion King CD-ROM sold more than 200,000 copies in the first quarter of this year, for example, and some Hollywood films, such as Johnny Mnemonic, are now produced for simultaneous theatrical and CD-ROM release.

Of course, while computer users enjoy accessing every imaginable kind of data, they also enjoy writing it; the CD-R (short for recordable CD) has been developed to fill that need. The price of a computer CD-R drive is dropping quickly, heading straight for $1.00, and the price of a blank CD-R is predicted to hit $10 by the end of this year. Given enough computer memory and the appropriate interface software, using a CD-R drive is as uneventful as using a floppy or hard drive. What’s being recorded to CD-R? All the digital audio and video programs that increasingly occupy the data busses of home computers.

And once you have a computer that’s fast enough to process huge amounts of data (such as digital audio and video) and CD-R drives that can read and write huge amounts of data, you immediately develop an incredible craving for even more data. Thus online services are growing by leaps and bounds. Given a service such as America Online that has an Internet or World Wide Web gateway, you gain access to an immense global database. Software, text, photos, videos, and everything else can be sucked into your computer and saved. Sounds like a business opportunity? You bet it is. Many American corporations (as well as universities, governments, libraries, museums, and individuals) now have Web “pages” brimming with multimedia information, and they are anxious for you to click on them.

So where is audio in all of this? Lost in the shuffle? Hardly. Audio is pre-eminent in the computer world. There’s hardly a home computer being built these days that doesn’t have a sound card. Computers have become articulates, with WAV files that say hello, goodbye, and everything in between. More important, audio has tapped into the brightest of all the computer-generated gold mines. Consider the supposedly arch-conservative record labels, many of which have Web pages. Log onto http://www.classicalmusic.com, for instance, a site run by Bertelsmann Music Group, and you can step into a CD Store and browse through art work, repertoire, artist rosters, and ordering information for more than 1,500 current classical music releases.

Clearly, once there is a secure method of accomplishing financial transactions over online services, it will be a simple matter for record companies to sell their music directly to you. Why bother to go to a record store and buy a prerecorded disc? Cut out the middleman. Just log on, preview the selections you’re interested in, then click on the download button. The company takes your credit-card number and downloads the album’s data, complete with cover art, liner notes, videos, and so on. You could burn the data to CD-R or another medium.

But actually, why bother to save the data at all? If the entire library of recorded music is always there, online, 24 hours a day, why not leave it in central storage? If you want to listen to an album or watch a movie, simply click on it and enjoy — you’ll be billed later. No more broken jewel boxes, storage-space problems, theft risk, aching back when you move, etc. Clearly, at that point, audio and computers will have indivisibly merged. The true meaning of audio and video digitization will be realized. No LP’s, no CD’s, no turntable, no compact disc player. Just a computer wired for AOD (audio on demand) and VOD (video on demand). Can you handle it, or is it too radical?

The first computers used analog technology, gears and cog wheels that literally cranked out simple numerical results. Similarly, the first audio technology was analog in nature, and powered by a crank. When those technologies stepped into the modern digital era, their evolutionary paths were destined to join. That transfiguration has begun. It’s simply a question of exactly when the technologies will become indistinguishable. That’s not a guess, or even a prediction. It is a certainty.
To the eye, invisible. 
To the ear, impossible.

It seems impossible. How can a room full of rich, lifelike stereo sound come from a system as small as the one in this picture? The answer is inside Lifestyle® music and home theater systems.

Bose patented technologies take everything good about the sound of a concert or movie, from the clarity of the music to the excitement of sound effects. And re-create it from a system so small, it's practically invisible in a room.

That is, until you turn it on. Suddenly, speakers you may have overlooked, and a music center that blends into your decor

Time magazine certainly did when it recently selected our Lifestyle® 5 system as the only stereo on its Ten Best Products list. But to believe the sound, you have to hear Lifestyle® music and home theater systems yourself. To find out which Lifestyle® System is best for you, and for names of Bose retailers near you, call 1-800-444-BOSE ext.544. Sometimes what seems impossible really does exist!
No Static at All: Digital Music Express (DMX)

BY REBECCA DAY

When I first heard about digital cable "radio" a few years back, I didn't even bother to find out whether my cable-TV company carried it. My local public-radio jazz station is excellent, and it's the only music station I listen to regularly. Even when the cable company started advertising Digital Music Express (DMX) last fall for $9.95 a month, I tuned it out.

Then, while checking out the mountain of remote controls at a friend's apartment in San Francisco, I came across one for DMX. I asked, with some skepticism, how he liked the digital music service. He loved it, he told me. No DJ's, no commercials, just solid, CD-quality music. He turned it on. Hmmm. No static or multipath; the sound was crystal clear. "So how do you know what's playing if there's no DJ?" I demanded. With a "gotcha" grin, he told me to press the VIEW button on the remote and point it toward the DMX box on top of his TV. The message "Retrieving data" appeared in the display panel on the top of the remote, and "Title: Bag's Groove" popped up. "Yeah, but who's it by?" Press it again, he interrupted, and "Artist: Duke Pearson" appeared in the display.

I was hooked. How many times had I heard a song I really liked on the radio just to have some distraction prevent me from hearing the title and artist? With DMX, you can get the song and album titles as well as the name of the performer or composer at any time by simply pushing a button. What a concept!

I called my cable-TV company a couple of weeks later to order the DMX service, which is provided to cable operators by Los Angeles-based International Cablecasting Technologies (ICT). The salesperson told me I could install the system myself if I wanted to (I did), so I stopped by the cable company's offices and picked up a cable-TV-like DMX box, an appropriately named DMX-DJ remote with a large LCD window that shows two lines of text, a splitter (to divide the cable feed for DMX and TV), two coaxial cables, and two RCA cables.

Installation was very straightforward. Following the instructions in the DMX owner's manual, I connected the main coaxial cable running from my wall jack to the splitter, and from there I ran one coaxial cable to the DMX box and one to the cable-TV box. Then I ran the supplied RCA cables from the left and right output jacks on the DMX box to my preamp. No big deal. After everything was hooked up, I followed the manual's instruction to push a couple of buttons on the box to engage an automatic setup routine. A rotating cursor appeared in the box's LED panel to indicate that the procedure was under way. When the panel went blank, DMX should have been ready for action. But when I turned on my A/V system there was silence. I double-checked all of the connections and ran through the troubleshooting tips in the manual. Still no sound. So I returned the DMX box to the cable company, and they gave me another one. "That never happened before," said the mystified cable-TV technician after he inspected the box.

I connected the new box to my A/V system in a matter of minutes. The manual says to connect the RCA cables from the DMX box to any line-level input, with repeated warnings not to connect them to a phono input. I had plenty of line inputs to choose from on my British-made preamp because I had unplugged several source components earlier in the day to move some equipment around. I plugged the DMX cables into the jacks labeled DISC because they were easiest to reach. After the setup routine was complete once again, I turned on my A/V system. Hmmm. Oops — I'd forgotten that the Brits call the phone input DISC! I quickly yanked out the plugs and reinserted them into the line-level A/V input.

With that little snafu behind me, I retired to the couch, selected A/V on the preamp's remote, and settled back for some CD-quality music. When I keyed in a channel number on the DMX remote I immediately noticed an unacceptable hum along with the music. I double-checked the connections, and everything was fine. Suspecting a grounding problem — a fairly common occurrence when a cable-TV feed goes through an A/V system — I paid a visit to my local specialty audio store in search of a solution. The salesman recommended a small black box from Mondial Designs called the Mondial Antenna Ground Isolation Circuit, or Magic for short.

I bought the $99 device and connected it between the main coaxial cable and the input to the splitter. The device, which also contains a surge suppressor to protect system components against voltage spikes, is designed to electrically isolate the A/V
Freedom to stay as long as you want, after you buy just one.

Boyz II Men: Dream It/Get It (Polygram)
Nirvana: Unplugged In New York (Geffen)
The Cranberries: No Need To Argue (RCA)
Vanessa Williams: The Sweetest Day (Jive)
Kathy Sledge: We're Through (Essential)
Barry Manilow: I Write The Songs (Elektra)
Mary J. Blige: My Life (MCA)
Trisha Yearwood: Thinkin' About You (MCA)
Yellowjackets: Collection (GRP)
Kenny G: Breathless (Arista)
Billy Joel: All The Best Greatest Hits (Columbia)
En Vogue: Funky Diva (Epic)
Rod Stewart: The Best Of Rod Stewart (Rolling Stone)
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-system from the cable-TV system to prevent ground-induced noise while still maintaining a ground connection that meets electrical code. (Sometimes you have to install two devices after the splitter instead, one before each cable box, according to Mondial's president, Tony Federici.) When I fired up the system, the hum was gone, just like . . . well, magic. Now I was ready for some channel surfing.

**Surfin' DMX**

DMX offers thirty channels of music with enough variety to satisfy just about every musical taste. (For even more variety, ICT recently launched a direct broadcast satellite system called DMX Direct, which is expected to deliver 120 channels by the end of the year; right now it delivers about eighty.) You select a channel either by punching in its assigned number on the remote or by tapping the up/down tuning buttons. A sticker on the back of the remote tells what kind of music is found on each channel. The remote has a convenient LAST button to call up the previously tuned channel as well as STORE and PRESET buttons that let you save up to ten favorite channels in memory for instant recall. I don't use the preset function, though, because it's confusing to have to remember, say, that the Blues channel, No. 30, is No. 8 in preset mode.

As I mentioned earlier, to find out what's playing at any time you simply press the VIEW button on the remote. The MORE button is used to scroll through additional information such as the album title and the name of the artist or composer. You also get a DMX catalog number for the current selection, which is the key to a new home shopping service (it should be available by the time you read this) with an 800 number that listeners can call to place credit-card orders for CD's, videos, and books.

Thankfully, the DMX remote can also operate your cable-TV box — all you have to do is punch in a code that corresponds to the box's manufacturer. In my case, some peculiarities emerged — the DMX LAST button, for example, turns my cable box on and off — but I've learned to adjust.

I listen regularly to three DMX channels — Classic Jazz, Traditional Blues, and Classic Rock — and occasionally I check out Lite Jazz, Big Band/Swing, 50's, and 60's Oldies, Symphonic, Chamber Music, and other Modern or Traditional Country. I'm disappointed in the Folk Rock channel because most of the artists are obscure and it has more of a rock or country flavor than folk. (I'm told that I'd probably like the folk channel carried on DMX Direct better.)

While I don't usually listen to DMX for long stretches at a time, when I have done so there didn't seem to be excessive repetition. That's probably because DMX maintains a library of between 700,000 and 800,000 titles. And despite what many people assume, the selections aren't arranged in a "loop" like the music channels offered on airplanes. According to ICT's chairman and CEO, Jerry Rubinstein, eighteen variables determine when and how often a selection plays, and the amount of repetition depends on the channel. The Hottest Hits channel, for example, sees a lot more rebounds than the Great Singers channel. I have observed some oddities and overlap, though. A segue from Bob Dylan's Subterranean Homesick Blues to Johnny Horton's North to Alaska on the 60's Oldies channel didn't quite work for me, even though both tunes are from the 1960's. And you'll find Dylan on both the Folk Rock and 60's Oldies channels. It pays to scan the channels before settling in with one.

The sound quality of DMX is clearly superior to radio, offering ultra-low distortion, freedom from static and noise, and CD-like frequency response and dynamic range. The program delivery, however, is subject to dropouts — brief periods of silence — when the digital signal transmission is interrupted. Rubinstein says that sun spots can be the culprits, particularly in the fall, causing up to 3 minutes of dropout time a year. Other dropouts are usually the result of problems on the cable provider's end. He says. Once I counted seven dropouts, of 2 to 5 seconds each, over a period of 2 1/2 hours.

DMX is a great source of background music for dinner parties, but its entertainment potential is its biggest asset as far as I'm concerned. Think of the games you can play with DMX: Name that tune, that artist, that album. Change channels and see who can guess what channel it is.

Warning: DMX can take a toll on your bank account. Monthly subscription costs run anywhere from $8.95 to $12.95, determined by the cable company, but what really gets me in trouble is buying all the CD's I decide I can't live without after getting a taste of them on DMX. Not that I'm giving up the radio — I still wake up to it and listen to it in the office and in the car, and I still support public radio. But DMX is definitely a keeper.

*Digital Music Express*,
11400 West Olympic Boulevard,
Suite 1100, Los Angeles, CA 90064
**The Subwoofer Connection**

**Q** My Dolby Pro Logic receiver does not have a subwoofer output terminal. Is there any other way I could connect a subwoofer without having to replace my receiver?  

**KURT JOHNSON**  
FOSON, CA

**A** Yes. Virtually all subwoofers today have speaker-level inputs to which your receiver's main speaker outputs can be connected. And in the case of passive subwoofers, which don't have built-in amplifiers, that's the only way to hook them up. In most cases, you feed the signal from the receiver to the subwoofer's front left and right inputs, and from there to the main front speakers; whatever crossover network is needed is in the sub.

Powered subwoofers (those with onboard amplification) accept either a line-level signal — whether from a dedicated subwoofer output or the pre-out signal of one of the front channels — or a speaker-level signal. With some receivers, the easiest way to make the connection is to run cables from the Speaker A terminals to the subwoofer. Be careful, though. Some receivers wire their A and B speakers in series, rather than parallel, to keep the total impedance up. In that case you'll have to make direct parallel connections to the same terminals feeding the main speakers.

**High Current**

**Q** When I was looking for a new receiver, the dealer told me I should be less concerned about the output wattage than about whether it had good high-current performance. Would, for example, a 50-watt receiver with high-current capability play louder and better than, say, a 100-watt unit with otherwise similar specifications?  

**GARY HOWARD**  
EIN St. Louis, IL

**A** High current capacity is important mainly if the amplifier has to drive a very low-impedance or reactive load, so the answer is, it depends. Few speakers pose problems in themselves for typical amplifiers or receivers, but connecting more than one set in parallel can tax the output stages of many. Since today's amps are essentially constant-voltage devices, dropping the load impedance tends to raise the current demand, and not all amplifiers can handle it. But if you're running a single pair of speakers, and they're within the amplifier manufacturer's specified impedance range, you should have no problems. Note, too, that for a given load impedance, more power also means more current. Although it's by no means impossible for a 50-watt amplifier to have greater current capability than a 100-watt model, it is unusual. Your best clue is in the power ratings for impedances of 4 ohms or less, if available.

**Speaker Spikes**

**Q** My speakers are quite heavy and stand on spikes. In my last house the floor was carpeted, but in my new location the speakers are on a hardwood floor, and I'm afraid the spikes will damage it. Would placing a piece of cork under the spikes to protect the floor a significant difference to the sound? Or is there another solution?  

**Mladen Radovanovic**  
Winnipeg, Manitoba

**A** I imagine that the spikes would eventually go right through the cork and damage the floor anyway. Until that happens, the supposed benefit of the spikes — better physical coupling between the speaker enclosure and the floor, and thus more stable operation — would be defeated by the cork. Not everybody agrees that spikes do much good (they might even make the sound worse by exciting resonances in the wood floor), but any effect is likely to be subtle, and I doubt that it would justify ruining a hardwood floor. Have you tried removing the spikes? Alternatively, you might try applying felt to one side of some pennies and placing them under the spikes (felt down, of course).

**Spinning the Carousel**

**Q** I watched with horror as a friend's wife proceeded to load discs by moving the carousel tray by hand, backwards and forwards, disregarding the disc-skip button entirely. Could she damage the mechanism by doing this?  

**George Hirstius II**  
Kenner, LA

**A** She can't be doing it any good, but as long as she doesn't have to force the tray to move, it will probably survive. Still, it can't hurt to suggest to her that ignoring the disc-skip controls might cause damage.

**Matching Old Speakers**

**Q** My three-way speakers have served me well for thirty years, but now I would like to add a second pair of speakers at the other end of my 12 x 30-foot living room. I realize I don't need such massive speakers as add-ons, but I'm finding it difficult to locate speakers with the same smooth re-
How to get a surround sound home theater for just $99...

Confused about home theater? It's no wonder with all of the hype on the subject. The simple truth is, you don't need an expensive Dolby® or THX® decoder to get great sounding Home Theater. Chase's award winning 5 channel HTS-1 Decoder works with your existing stereo, is easy to use, and even makes "Wireless Home Theater" a reality at last!

By Bob Rapoport

**WHAT IS HOME THEATER?**

Movie theater sound systems and soundtracks are set up to provide 5, 6 or even 8 distinct channels of sound. These systems surround you with sound, and recreate the "FEEL" of the movie, putting you in the middle of the action. For most people, it is thrilling. In the last few years, audio manufacturers have come out with expensive and complex multi-channel sound systems which try to do the same thing in your living room at home. Hence the term "home theater".

The home video version of the same movie has a stereo soundtrack with only 2 channels of sound, left and right. An additional "surround channel" is recorded "out-of-phase" with the main stereo signal.

Chase decoder extracts the sum of the left and right channels, known as the mono signal, and directs it to a center channel output on the decoder. This channel does have to be amplified separately, so Chase makes a special self amplified center channel speaker called the "Dialogue". It's built-in 10 watt amplifier has just the right amount of power to amplify the mid-range voice signals and on-screen special effects.

Some people will want to use the speaker in their TV as the center channel, just as they always have. This works, but because the TV speaker is surrounded by a big cabinet and has a lower power amp, the effect might not be as dramatic as when the Dialogue is used.

**HOW CAN AN INEXPENSIVE DECODER OUT-FORM THE ACTIVE SYSTEMS?**

By keeping it simple. Active systems use signal processing to decode and separate the surround and create the center channel. Then they add time delay, and noise reduction, both of which we believe are unnecessary and add a lot of noise and distortion and reduce clarity and detail. By using passive circuitry, the Chase decoder has no noise or distortion, so you hear all of the surround effects clearly. It's full band-width design out-performs the filtered, active systems.

Chase has designed a simple and affordable decoder that features "PASSIVE MATRIX" circuitry, avoiding costly and noisy signal processing. The HTS-1 is the only decoder available today that does not require you to buy a new amp for the rear channels, although it has outputs for extra amps as well, so upgrading is easy. It also decodes all the surround sound movie formats, with no noise and distortion of any kind. As one reviewer put it, "PRETTY NEAT!"

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response — I don't want them to clash with each other. Are your thoughts? HARRY RUSSELL
Staten Island, NY

You may never obtain a perfect match, especially given the age of your existing speakers. As with everything else, there are fashions in sound quality, and many older speakers sound quite different from today's products. To obtain the best match, I suggest finding something reasonably close — speakers from the same manufacturer may or may not be a good bet — and then equalizing them to approximate the total balance of your existing speakers. This would involve adding or subtracting a unit but that might be a good idea anyway.

Razor Treble

Why is it that when I play a CD on my stereo system the sound is good, but when I play a prerecorded cassette of the same material the treble comes out as sharp as a razor blade? The system is fairly inexpensive, but I doubt that's the problem.

What's going on? ALVIN LINDSAY, JR.
Navasota, TX

It's no news that a CD sounds better than a cassette, especially a commercially recorded one. With rare exceptions, the music you buy on tape sounds inferior to what you could record yourself, partly because most prerecorded cassettes use inexpensive tape and partly because they are duplicated at very high speed. The specific razor-like sound quality you describe suggests to me an unneeded Doby recording (although I would not normally expect sound that unpleasant in such a case). Your inexpensive system may not have Doby circuitry, or it may be misadjusted; either way, you end up with overly bright sound. If there is no decoder, there's not much you can do. If it's misadjusted, a trip to the service center is probably in order.

Analog Masters

I realize that when I see "DDD" on a CD it means that the original master and the intermediate stages were analog and only the final product is digital, and that "DDD" means it's digital throughout. I find that DDD recordings sound much better, but there are still recordings being made that are AAD. Why aren't all C-D's today fully digital?

AVIAN MORGAN
South Haven, MI

Converting a studio to digital recording can be an expensive proposition, and there are still lots of recording companies that have not made the switch. Also, many producers simply prefer to work in the analog domain even if the final product will be a digital CD. I recently visited a studio operated by one of the digital heavyweights — Sony Music. No less — where the recorder of choice was a twenty-four-track analog deck running at 30 ips with no noise reduction of any kind.

There's no reason an analog master can't have virtually the same response and dynamics as a digital recording — certainly the sound coming out of the above-mentioned studio was spectacular. The muddiness we associate with older analog recordings often stems from signal degradation in the multiple generations following the master, or sometimes from overly aggressive signal processing. But a first- or second-generation analog tape can be excellent. As long it's transferred to digital early in the chain, the resulting CD can often be just as good as one that started digitally.

Tubes and Transistors

I'm fascinated by the claims for the superior performance of vacuum tubes made by some writers (and by the skepticism of others). Would it be advisable to have a power amplifier/preamplifier combination using tubes in one and transistors in the other? If so, is one combination better than the other?

CECIL E. DIZON
Quezon City, Philippines

The tube-vs-transistor debate goes way back and will probably be with us as long as anybody cares to make vacuum tubes. My view is that it is possible to make excellent audio gear using either type of device, but that it is easier, cheaper, and far more practical to use solid-state components. Assuming you do get a piece of tube equipment that meets your performance demands, it should work very well with a transistor component, and it makes little difference which is which.

TV Surround

I know that all the information for surround sound is contained in the left and right channels, yet in my experience when movies are broadcast the surround doesn't come through. Is there some sort of encoding that can be done at the transmitter so that we could receive surround sound?

STEVE MARTIN
Northbrook, IL

As long as the movie was encoded with Dolby Surround to begin with, and the TV station is actually broadcasting in stereo, you should be able to decode the surround information — there's really no way for a TV station to remove the surround encoding from an existing soundtrack. An increasing number of TV programs are also encoded in surround sound. If you're having trouble getting the sound you want, your TV set may be the culprit — quite a few have very limited stereo separation, and the closer a signal gets to mono, the more it will be directed to the center speaker. Also, some cable-TV systems retransmit everything in mono, regardless of how it was broadcast.

If you have a question about audio, send it to Q&A, Stereo Review, 1633 Broadway, New York, NY 10019. Sorry, only questions chosen for publication can be answered.
Definitive's PowerField 1500 Wins the Subwoofer of the Year Award

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Speaking of Speakers

The weakest link in any audio system is the loudspeaker. Fundamentally, a speaker's role is to reproduce recorded music (or speech), which was originally converted into electrical form in a totally different acoustical environment. Even if we assume that the electrical system is perfect (including the recording and playback medium, now almost exclusively digital and, even if not quite perfect, many orders of magnitude better than the best speaker), we are left with the more or less intractable problem of reconstructing the original sound in its entirety. The most nearly perfect speakers that can be imagined simply cannot recreate the sound field of any concert hall in a different acoustical environment.

All right — so it can't be perfect. Can it sound so real that most people can't tell the difference? Not in any way that I can imagine, although minor miracles can be wrought by digital signal-processing (DSP) techniques. In general, if the listening environment is significantly different from the recording environment, no one would have much difficulty telling that he was not hearing the original live program.

We all know that loudspeakers differ widely in their sound qualities. Most of us have some favorite speakers and probably a greater number that we wouldn't have in our homes on a bet. Surely among those speakers are some that are better than others (depending on how you define "better"). Unfortunately, it is not easy to quantify a speaker's sound quality in any meaningful way.

There is a basic problem with assessing — and measuring — speaker sound. We can control the information going into the speaker (such as test signals or music). But though it has a single, well-defined input, a speaker's output is different at every point in the room (including each of the listener's ears, which is how we experience stereo) and heavily dependent on the physical configuration of the listening environment. How do you get any useful information out of that situation?

In a word, carefully! It is risky to leap to conclusions about a speaker's performance. Although every speaker has literally an infinite number of outputs into the room, some of which are measurable, and a certain sound character of its own (as modified by the surroundings), each listener's brain also weighs the information reaching it in its own fashion and comes to its own conclusions on the merits (or otherwise!) of the speaker's total output.

Performing a complete set of acoustic measurements on a loudspeaker is a herculean task and ultimately beyond our capabilities. Recognizing that I have over the years developed a limited set of tests that serve to verify some of the common operational specifications of a speaker (impedance, sensitivity, and so forth) and, to a limited degree, its acoustic performance. And, of course, I listen, both before and after making the measurements. Typically, I use a given speaker over a period of several weeks and listen to it with a variety of music. Since there are usually several speakers on hand at any one time, a limited amount of direct

Unfortunately, it is not easy to quantify a loudspeaker's sound quality in any meaningful way.

comparison is also involved. I do not have a "standard" reference speaker for this purpose, nor do I think that would be practical, given that the reviewed speakers range from small, inexpensive models that can be held in one hand to some that I cannot lift up and that occupy a large part of the available space. (And there is the problem that after a while one may start to take a particular set of speakers as a true reference, against which others, consciously or unconsciously, are judged; no speaker is really good enough for that.) I have developed a combination of several measurement procedures that give me a good "feel" for a speaker's acoustic performance. By standardizing the test conditions as much as possible, I can make reasonable comparisons between speakers that are no longer available for listening, and when the manufacturer supplies his own measurement curves (which we request, but rarely receive) we can usually verify that we are both addressing the same acoustic reality.

For years our basic speaker response measurements have been made with a swept-frequency sine-wave test signal, with a superimposed one-third-octave "warble" to minimize the effects of room-boundary reflections on the data. This technique works well at middle and high frequencies but is invalid at low frequencies where room standing waves become appreciable. To get around this problem, we measure the woofer response separately with the microphone close to the driver cone, which effectively gives an anechoic response, unaffected by the room.

Next we overlay the two curves on a light box and adjust them for the best possible overlap (usually over a two- or three-octave range). A tracing of the result is what I call a "composite corrected frequency-response" curve. Although fictitious in a certain sense, this curve is an indicator of the speaker's inherent performance, with a minimum of modification by the room boundaries.

The Audio Precision System One test system gives us another handle on the frequency response of a speaker. Using a special pseudo-random noise signal, it can greatly reduce the effects of room-boundary reflections on the measurement. This "maximum length sequence" (MLS) response is limited to frequencies above 300 Hz, but in a 300-square-foot room it gives a reasonable picture of a speaker's anechoic frequency response (normally measured on-axis at a distance of 1 or 2 meters). Usually (but not always, unfortunately) the MLS and composite response curves have much in common and appear to define a speaker's frequency response about as well as can be done under less than ideal conditions.

Listening is the bottom line of the evaluation process. Although it does not always reveal even some obvious anomalies of the measured response, it is (or should be) the final arbiter of the evaluation process. In the end, the individual who is going to live with the speaker must make the decision, preferably giving more weight to personal experience than anyone else's opinion or recommendation. Test reports may help, but when the time comes to part with your money, the choice is yours to make.
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Mirage M-1090i Loudspeaker System

M

 Mirage is the company that first popularized the concept of "bipolar" loudspeakers, which use identical sets of drivers, driven in phase with each other, on the front and back of the cabinet. The Canadian manufacturer has recently enlarged its family of bipolar speakers with the introduction of three handsomely styled, moderately priced systems.

Heading the group is the M-1090i, a columnar speaker covered on all four sides by a black elastic cloth "sock" grille. The top and bottom surfaces are wood, finished in glossy piano-black lacquer. The "footprint" of each speaker is remarkably small — less than a square foot. The basic driver configuration consists of a 6½-inch molded polypropylene cone with a butyl-rubber surround and a 1-inch vapor-deposited titanium dome tweeter, both located at the top of the speaker, one set on the front panel, another on the back. A bass vent is near the bottom of the rear panel. The speaker's recessed input connectors, just below the vent, are two pairs of gold-plated binding posts joined by jumper strips. They are compatible with bare wires, lugs, or banana plugs (single or dual). With the jumpers removed, the system can be biwired or biamplified.

Like other bipolar speakers, the M-1090i is designed to produce a nearly omnidirectional pattern of coverage in the horizontal plane, with slightly reduced output to the sides (but much more than one would get from a dipole speaker, such as a panel model, whose front and back outputs are out of phase with each other). For best performance, a bipolar speaker should be freestanding, placed at least 18 inches in front of a wall and well away from the side walls (Mirage also recommends using spiked feet if the speakers are to be installed on a carpeted floor). A properly designed and installed bipolar loudspeaker system can create a distinctive sense of space that is a hallmark of the genre, resulting from the slightly delayed reflections from the wall behind it.

Mirage's specifications for the M-1090i include a frequency response of 32 Hz to 22 kHz ±3 dB, both on-axis and 30 degrees off-axis, with "usable bass response" (~10 dB) down to 28 Hz. The system's sensitivity is given as 85 dB sound-pressure level at 1 meter (anechoic) or 89 dB in a normal room. (Since the anechoic measurement effectively applies to the output from only one set of drivers, it would be expected to be about 3 dB lower than a room measurement, which would include the outputs of both sets.) The rated nominal system impedance is 6 ohms, with a minimum of 4 ohms. Recommended amplifier power is from 50 to 175 watts per channel.

We installed the Mirage M-1090i
speakers roughly as recommended, although circumstances required them to be several feet in front of the wall behind them (which did not degrade their performance in any way we could detect). The averaged room response of the two speakers indicated exceptionally good bass extension, with the normal response irregularities of a room environment. From about 300 Hz on up, the output was very smooth, sloping gently downward with increasing frequency. The overall change in response from 300 Hz to 20 kHz was about 6 dB.

We measured the front woofer response with close microphone spacing. It was flat within ±3 dB from 20 Hz to 1 kHz, sloping downward above 2 kHz. The woofer and room-response curves overlapped over a range of almost three octaves, from below 300 Hz to just over 2 kHz (apparently the crossover frequency to the tweeter). Combining the two responses yielded a composite curve that was flat within ±3 dB from 20 to 800 Hz, sloping down smoothly by about 5 dB from there to 12 kHz and rising again by about 6 dB at what appeared to be the tweeter resonance in the vicinity of 15 kHz.

Since these measurements, though consistent with each other and with what we heard, were inevitably influenced by the room environment (as they would be, though perhaps differently, in your listening room), we were interested to see the results of quasi-anechoic measurements using the MLS capability of our Audio Precision System One test system. At 1 meter, on the front tweeter axis, the MLS response decreased above 2 kHz to about −5 dB at 6 to 7 kHz, rising to its original reading at the tweeter resonance peak (13.7 kHz). We measured virtually identical response at 2 meters as well.

The tweeter's horizontal dispersion was typical of 1-inch metal domes, with little change in output, relative to the axial response, below 10 kHz and about a 14-dB drop at 20 kHz at 45 degrees off-axis. Group delay, which is a function of phase linearity, was very uniform from 2 to 20 kHz (less than 150 microseconds variation overall) and clearly showed that the transition from woofer to tweeter was at 2 kHz.

System impedance was essentially as rated, with a minimum of 4.3 ohms at 180 Hz, a bass rise to 13.5 ohms at 63 Hz, and readings in the 6- to 10-ohm range at most frequencies above 500 Hz. Sensitivity measured 86 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt input of random noise.

We measured the woofer distortion as a function of frequency, with an input of 4.3 volts (corresponding to a 90-dB SPL output). It ranged from 0.3 to 0.6 percent between 100 Hz and 2 kHz, rising to 2 percent at 70 Hz and 7 percent at 30 Hz. In single-cycle pulse power-handling tests, the woofers bottomed at 600 watts input to the speaker's 6-ohm impedance at 100 Hz. At higher frequencies our power amplifier clipped before there was any significant audible sign of distress from the drivers.

Our listening experience with the M-1090i was totally positive and consistent with the test data. It had the believable imaging and airy quality characteristic of good bipolar reproducers, plus a sweet, musical quality that audibly confirmed the smoothness of our measurements. It came as a pleasant surprise to find that the low bass was as audible as it was measurable. Playing test CD's, we established that while 17 Hz and 20 Hz sounded pretty much alike (obviously low in frequency but with enough harmonic content to dilute the effect considerably), 31.5 Hz filled the room with clean, ear-popping bass—a surprising achievement for the modest driver complement (and size) of the pair of M-1090i speakers.

Our final assessment of these speakers was completely favorable. If we had not already been convinced of the advantages of bipolar speakers, this experience would have converted us. At any rate, if you are in the market for new speakers (and are not committed to placing them close to the wall), listen to these, or others of similar design, before making a final choice. You won't regret it.
TEST REPORTS

M&K V-125 Powered Subwoofer

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Although Miller & Kreisel (M&K) manufactures a full line of loudspeaker systems, the company is perhaps best known for its powered subwoofers. One of the newest among them is the V-125.

The V-125 is relatively large and heavy compared with some of the other subwoofers we have tested recently. Its nominally 12-inch driver (the actual effective cone diameter is about 10 1/2 inches) faces forward behind a removable black cloth grille that covers the entire front of the all-black cabinet. Unlike many other subwoofers, the V-125 is magnetically shielded, enabling it to be used close to a video monitor or TV set. The fully sealed enclosure also contains an amplifier rated at 125 watts output.

In addition to a large heat sink for the internal amplifier, the V-125’s back panel is well populated with connection terminals and controls. This is an unusually versatile powered subwoofer, with RCA-jack inputs for line-level signals from a preamplifier or an A/V receiver’s subwoofer output, as well as spring-clip wire connectors for the right- and left-channel speaker output signals of a power amplifier or receiver and similar connectors for outputs to a pair of satellite (main) speakers.

Among the controls on the back panel is a toggle switch that reverses the phase of the subwoofer output relative to the main program signal. The manual discusses the procedures for setting this switch, which must be done after the system is set up and operating. There is also a knob that smoothly varies the subwoofer’s low-pass filter cutoff frequency between 50 and 125 Hz (with approximate calibrations at 50, 60, 75, 100, and 125 Hz). Another knob adjusts the subwoofer’s level to blend properly with the output of the main speakers.

A handy feature, whose use is optional, is a built-in high-pass filter, accessible only through the speaker-level inputs, which excludes program content below about 80 Hz from the main speakers. M&K suggests experimenting with this operating mode, since its effect on the sound quality is related to the bass capabilities and impedance characteristics of the main speakers.

The V-125 has no power switch (although a small red LED on the rear indicates that it is turned on), and M&K recommends that it be left powered continuously. The heat sink becomes only slightly warm in extended operation, and the only clue to the amplifier’s continuous power drain is its 2-ampere slow-blow power-line fuse. Presumably the standby power consumption is small enough to have a negligible effect on your electric bill.

We plotted the V-125’s frequency response with close microphone spacing, resulting in an essentially anechoic measurement. A family of curves was generated, one for each of the calibrated low-pass cutoff frequencies, on a single graph. The maximum output occurred at about 60 Hz, sloping down at about 6 dB per octave from there to our lower measurement limit of 20 Hz. At the highest setting of the frequency control (125 Hz), the output was flat within 6 dB from 28 to 125

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Culver City, CA 90232

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Hz. The crossover slope, at frequencies above about 100 Hz, was approximately 36 dB per octave. That’s an exceptionally steep cutoff, which should aid appreciably in making the subwoofer nonlocalizable by ear.

We measured the distortion of the V-125 with its level set to give a 100-Hz sound-pressure level (SPL) of 90 dB at a distance of 1 meter. The distortion was a minimum of 0.35 percent at 70 Hz and remained less than 1 percent from 50 Hz to well beyond the top crossover frequency of 125 Hz. At lower frequencies the distortion (principally odd harmonic) rose to about 10 percent at 25 Hz. Atypically, there was no obvious waveform clipping from amplifier overload, presumably forestalled by M&K’s Active Headroom Maximizer circuit.

As the crossover control was turned down, the output remained constant below 40 Hz, while the higher frequencies were smoothly attenuated above the selected cutoff frequency. The difference between the two lowest curves (cutoff at 50 and 60 Hz, respectively) was negligible.

We operated the M&K V-125 with a pair of small speakers whose low-frequency response was adequate down to about 80 Hz, so we used that approximate setting of the crossover control. The V-125’s control flexibility simplifies its adjustment, although we did not experiment extensively with positioning and polarity switching.

That flexibility makes the M&K V-125 well suited to use in a wide variety of installations. Although its low-frequency “reach” was not quite as deep as that of some subwoofers we have used, its output was audibly strong and clean down to 30 Hz and still useful into the 20’s. And few other subwoofers can match its ease of installation, setup, and operation. It is a very appealing choice for anyone seeking the powerful rumble of a high-performance subwoofer at a reasonable price.

The M&K V-125 has an unusually steep (36-dB-per-octave) low-pass crossover, adjustable for cutoff frequencies between 50 and 125 Hz.

"No more for me, Jerry. The AM section is sounding better than the FM."
Today's A/V receivers provide tremendous benefits, but they also tend to be relatively large and expensive and are often too complex for most people to operate effectively. The inexpensive Sherwood RV-4050R takes a different course. It makes no attempt to simulate different hall environments or to dazzle (and often bewilder) us with an array of knobs, buttons, and multicolored displays, many of which would rarely, if ever, be used by the average buyer. But it does have an above-average AM/FM tuner, front-channel power amplifiers rated to deliver 60 watts per channel, and a Dolby Pro Logic decoder. In its Pro Logic mode, the power rating falls to 50 watts per front channel, but since it then operates in a three-channel mode (left, center, right), the total output capability across the front becomes a hefty 150 watts. In addition, the rated output of its surround (rear) channel in Pro Logic operation is 20 watts.

The Pro Logic system also provides the so-called "Dolby 3 Channel" mode, which extracts the center channel but leaves the surround channel folded into the front left and right — useful for those who have no practical way of placing surround speakers in their rooms. The Dolby Pro Logic system in the RV-4050R includes an automatic input-balance circuit and a random-noise test-signal generator to facilitate balancing the speaker levels.

The RV-4050R's front panel contains a single fairly large knob, resembling the tuning or volume control of a conventional receiver, and marked VOL/TONE/BALANCE. Although not as densely populated as the front panels of some other A/V receivers, it also contains a number of pushbuttons of various sizes and shapes, all of whose functions are clearly identified.

Instead of the large and colorful display window found on most A/V receivers, however, the RV-4050R's operating readout consists of a 1 x 2 1/4-inch fluorescent display in the middle of the panel. The principal information shown is the frequency and channel-preset number of a selected AM or FM station or (in small characters) the name of any program source selected by one of the seven large rectangular buttons below the display. Other small characters appear as required to indicate functions that may be activated during operation of the receiver. A horizontal display of one to seven red squares appears below the frequency display. The inputs are identified as FM, AM, VCR1, VCR2, TAPE MONITOR, TV/AUX, and CD. The VCR2 input is through front-panel jacks intended for hooking up the audio and video outputs of a camcorder.

The left portion of the panel contains the power switch, a headphone jack (which silences the speaker outputs when phones are plugged in),
"This Is The Best $199 You Can Spend On Yourself."

PC magazine

"...really amazing...exceptionally good...sounds terrific." Audio magazine

SoundWorks - our amplified speaker system may well be the most exciting product ever designed by Henry Kloss - and the most affordable. Never before has so much high quality, wide-range, natural, "big" sound come from such a small, affordable system. It is ideal for hundreds of applications.

Henry Kloss

SoundWorks consists of two satellite speakers (app. 3 1/2" x 3 1/2" x 3 1/2") and a compact, subwoofer cabinet that encloses a 4" woofer, a 3-channel amplifier, equalization and crossover electronics, as well as a control panel.

The Satellites.
The small satellites are magnetically shielded so they can be used very close to a TV or computer monitor. They contain a remarkable 2" speaker driver with a long-throw/wide-range design that reproduces high and mid frequencies down to 150 Hz, without the need for a "midrange" driver.

SoundWorks comes with satellites finished black, or in "computer-beige." They can be used as is, hung on walls using their back-panel slot, used with their mini-stands, or they can be attached to a computer monitor with our velcro kit (supplied).

"SoundWorks has the most natural musical timbre." The New York Times

The Sound.
In terms of frequency range, tonal balance, stereo imaging and overall sound, SoundWorks compares very favorably with component music systems costing far more. It just doesn't seem possible that a system so small could produce a sound so "big." But it does.

The Applications.
Because of its small size and price, and because of its magnetically shielded satellites, SoundWorks is ideal for use as a multimedia speaker with any computer. It fits easily into smaller rooms - like kitchens, dens, dorms and bedrooms. Its 12-volt capabilities make it perfect for boats, campers, and cars. With our optional carrybag (59"), it makes an ideal musical traveling companion. You can even play the system while it's in the carrybag.

The Price.
You can buy SoundWorks only direct from Cambridge SoundWorks, or at cost-efficient Best Buy stores, for only $199. We haven't heard a system for anywhere near its price that we think sounds nearly as good.

We Eliminate The Risks.
With our 30-day risk-free home audition, you can listen to SoundWorks the right way - in your home, with your music. If you aren't happy, return it within 30 days for a full refund. We even reimburse your original UPS ground shipping charges in the continental U.S.

For A Free Catalog, Call 1-800-FOR-HIFI

Cambridge SoundWorks products are available only direct from Cambridge SoundWorks and at our Factory-Direct Speaker Walls in over 200 Best Buy stores nationwide.

Cambridge SoundWorks

CIRCLE NO. 6 ON READER SERVICE CARD
up/down tuning buttons, and two buttons that select the tuning mode and store station frequencies in the channel-preset memory for instant recall. The RV-4050R can store as many as thirty AM and FM frequencies in any order. It also has a preset feature that automatically sweeps up the FM band and stores the frequencies of the first thirty receivable channels.

Now for that single large knob. It can be rotated continuously through about thirty light detents but no stop. Its primary function is as a volume control. In normal operation, rotating the knob clockwise causes a row of seven red lights to come on sequentially from left to right in the display to show the approximate volume setting.

To the left of the knob are three slender buttons, marked BASS, TREBLE, and BALANCE. If you want to adjust low-frequency response, pressing the BASS button turns the knob into a bass control. Normally, only the center dot of the display will light, showing that the response setting is flat. As you turn the knob clockwise, the dot moves sequentially to the right, over a maximum of three steps, indicating a bass boost. Similarly, a counterclockwise turn moves the dot to the left (and the bass response down). The actual number of different bass responses is six in either direction. A few seconds after a change is made, the display and the knob return to their normal functions. The treble and balance adjustments are made in the same manner. The bass control, by the way, produces responses reminiscent of those from a graphic-equalizer band centered at 100 Hz. It boosts or cuts frequencies near that point while leaving the deep bass relatively unaffected. The treble control is conventional, producing shelving responses.

At any time, you can check the bass, treble, or balance setting by pressing the associated button; a few seconds later, the display returns to its normal (volume) indication. Finally, successive operations of the SURROUND button switch the receiver from its two-channel stereo mode to Dolby Pro Logic, to Dolby 3 Stereo, and back to conventional stereo.

Other than the vcr2 and headphone jacks, all the inputs and outputs are on the rear apron. Standard phono jacks are used for the signal inputs and outputs and for the DigiLink connectors, which can join the RV-4050R to other compatible Sherwood components for unified system operation. Spring clips, usable only with stripped wire ends, are provided for all speaker outputs as well as the antenna connections. Antenna inputs are provided for 300- and 75-ohm FM antennas and the furnished AM loop antenna. There is one switched AC outlet.

If you think that the front-panel controls offer insufficient operating flexibility, take a glance at the RV-4050R's remote control. It is actually a system control, also operating compatible Sherwood CD players and tape decks. Although many of its fifty-five buttons are for CD and tape functions, most are dedicated to the receiver.

The remote control is the only means of adjusting the levels of the surround and center channels and switching the level-balancing test signals on or off. It duplicates the functions of all the receiver's front-panel controls while adding such extra features as temporary muting of the audio outputs and a sleep timer, which automatically shuts off the receiver after an adjustable period of 10 to 90 minutes. My chief criticism of the remote control is that all its buttons are the same size and shape, and almost all are the same color (black).

The specifications for the RV-4050R...
Introducing **Ensemble IV**

The Most Affordable Sub/Sat Speaker System Ever By Henry Kloss.

*Ensemble IV* is an ultra-compact, very affordable subwoofer/satellite speaker system designed by Audio Hall of Fame member Henry Kloss (founder of AR, KLH and Advent). It maintains the precise octave-to-octave tonal balance of our original *Ensemble* system, which *Audio* magazine said, “may be the best value in the world.” It doesn’t have quite the deep bass extension of the original *Ensemble*, and it won’t play as loudly. But in terms of performance for the dollar, we believe it has no serious rival.

**The Classic Ensemble Sound.**

We believe the single most important factor in designing a musically accurate speaker is tonal balance. A properly designed speaker should put no extra emphasis on one octave versus another. Henry Kloss spends an extraordinary amount of time “voicing” his speaker designs for precise, octave-to-octave tonal balance. The result is that *Ensemble IV* has an overall sound very similar to the more expensive members of the *Ensemble* family. What it sacrifices is the lowest half-octave of deep bass, and power handling capability.

**Ensemble IV Home Theater** is identical to the basic *Ensemble IV* system except that it has five satellite speakers instead of two. It’s perfect for use in surround sound systems with Dolby Pro Logic®. Price $37999

**Great Sound, Anywhere.**

*Ensemble IV*’s satellite speakers are small enough to fit in the palm of your hand (4” x 4” x 3 5/8”). Its subwoofer is about the

$229.99

*The Ensemble IV Subwoofer/Satellite Speaker system*

Ensemble IV Home Theater is identical to the basic Ensemble IV system except that it has five satellite speakers instead of two. It’s perfect for use in surround sound systems with Dolby Pro Logic®. Price $37999

Henry Kloss

Kloss says, “*Ensemble IV* is the smallest and most affordable system I can design for use with any amplifier or receiver and still provide deep, really satisfying bass.” Sir CE low frequency bass is non-directional, the subwoofer can be hidden behind or under furniture.

**Factory-Direct Savings.**

Cambridge SoundWorks products are available only direct from us, or through cost-efficient Best Buy stores nationwide. Because of our efficient distribution, you get unbeatable quality and performance for your dollar. After you hear *Ensemble IV*, we think you’ll agree that it sounds as good or better than speakers selling for hundreds more. It comes complete with 100’ of speaker wire, a wire stripper/cutter, a Hook-Up Guide and our Guide To Surround Sound.

**We Eliminate The Risks.**

*Ensemble IV* is backed by our 30-day Total Satisfaction Guarantee. Try it in your home, with your music. If you don’t like it, return it for a full refund. We even refund your original regular ground UPS shipping charges.

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Cambridge SoundWorks products are available only direct from Cambridge SoundWorks and at our Factory-Direct Speaker Walls in over 200 Best Buy stores nationwide.

**Ensemble IV Home Theater.**

The lowest bass notes are reproduced by Ensemble IV’s shoe box-sized subwoofer. It uses a remarkable 5 3/4” bass driver with dual voice coils. The driver is mounted in a true acoustic suspension cabinet. It fires into a second “tuned bandpass” cavity within the cabinet which filters out unwanted higher frequencies. The careful engineering of this design allows *Ensemble IV* to combine deep bass response with high efficiency. Henry
are generally typical of today's receivers with respect to its tuner and preampifier characteristics. Perhaps the most obvious distinction between its specified performance and that of more expensive receivers is that its power ratings are based on a 0.5-percent distortion level, but, as our measurements show, those ratings are quite conservative. Particularly noteworthy is the receiver's strong output into 4-ohm loads — up almost 50 percent from that measured into 8 ohms.

In addition to its very adequate performance and low price, the RV-4050R's most striking feature is its one-knob control. I consider simplicity without sacrifice of essential performance to be a cardinal virtue. To achieve it at a bargain price is a further indication of good engineering.

I recall testing one other product with a similar one-knob control system. The Swedish Audio Pro tuner/preampifier of 1981 was a pioneering effort in this direction, and it worked very well indeed. It had no power amplifier, however, and its price was more than $1,000 (in 1981 dollars!). Compare that with the Sherwood RV-4050R and its $270 price, and you may better understand my enthusiasm for the Sherwood.

**SECOND OPINION**

Sherwood RV-4050R Audio/Video Receiver

As if to make up for its front- and rear-panel austerity, the RV-4050R really delivers in terms of performance. Its Dolby Pro Logic measurements and sound quality were right up there with what we typically see from receivers priced two to three times higher. The measured surround-channel noise level, in fact, was notably low and gratifyingly below audibility in our listening tests — a distinct improvement over what we've found with many other A/V receivers. A measured 1- or 2-dB advantage here can mean the difference between audible and inaudible noise from the main listening position.

The response deviations for the left and right front channels — caused mostly by a high-frequency rolloff that reaches about 0.5 dB down at 10 kHz — are part of the receiver's basic performance and do not completely disappear when it is switched out of Pro Logic mode. The center channel rolls off more rapidly above 10 kHz, at which point it is down by 1 dB, having passed through the -0.5-dB point at 5 kHz. These response errors were large enough to be barely audible during careful listening tests but are not serious, particularly in light of the typical quality of soundtracks. In fact, the slight rolloffs may serve to reduce harshness when some soundtracks are played back at theater-like levels.

Although the RV-4050R's rated and measured front-channel outputs might seem a little low compared with those of larger — and more costly — receivers, remember that the Sherwood's 60 watts per channel will produce peak sound levels only 3 dB lower than could be obtained from a receiver that delivered 120 watts per channel. That difference might be audible at very high volumes, but it would be small and certainly not proportional to the difference in price. In that light, the Sherwood RV-4050R is a genuine and highly recommendable bargain.

— David Ranada

**DOLBY PRO LOGIC PERFORMANCE**

<table>
<thead>
<tr>
<th>Frequency response (tone controls centered)</th>
<th>Channel separation (100 Hz to 7 kHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>left, right ... 20 Hz to 20 kHz +0.02, -0.01 dB</td>
<td>left output, right driven &gt;55 dB</td>
</tr>
<tr>
<td>center ... 20 Hz to 18.3 kHz +0.03, -0.03 dB</td>
<td>center driven &gt;28 dB</td>
</tr>
<tr>
<td>surround ... 54 Hz to 6.7 kHz +0.07, -0.3 dB</td>
<td>left output, surround driven &gt;37 dB</td>
</tr>
<tr>
<td>Output at clipping (channels driven individually)</td>
<td>center output, left driven &gt;41 dB</td>
</tr>
<tr>
<td>left, right ... 60 watts</td>
<td>center output, right driven &gt;41 dB</td>
</tr>
<tr>
<td>center ... 60 watts</td>
<td>surround output, left driven &gt;39 dB</td>
</tr>
<tr>
<td>surround ... 15 watts</td>
<td>surround output, center driven &gt;39 dB</td>
</tr>
</tbody>
</table>

**Noise (re 1-watt output, A-wtd)**

left, right ... -73.1 dB
center ... -75.3 dB
surround ... -72.2 dB

**Distortion (THD+N, 1 kHz, 1-watt output)**

left, right ... 0.032%
center ... 0.029%
surround ... 0.024%

**Surround decoder input overload margins (at 1 kHz)**

left, right (re 2-volt input) ... 1 dB
center (re 1.414-volt input) ... 2.75 dB
surround (re 1.414-volt input) ... 2.75 dB

**Surround-channel noise reduction calibration error**

re Dolby level (247.5 mV) ... 0 dB

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"Ensemble II performs so far beyond its price and size that it can be compared only with much larger speakers at substantially higher prices."

**Stereo Review**

Audio magazine once said our Ensemble speaker system may be "the best value in the world." And Stereo Review said, "It's hard to imagine going wrong with Ensemble." Dozens of critics and thousands of customers have applauded our Ensemble, Ensemble II and Ensemble III speaker systems. Designed by Henry Kloss (founder of AR, KLH and Advent), they became best sellers by offering quality construction and accurate, wide-range music reproduction — at Factory-Direct prices.

**Ensemble**

Our current Ensemble is an improved version of our original dual-subwoofer/satellite speaker system. It maintains the dual subwoofer design, which allows for maximum room placement flexibility. Placement of bass and high-frequency speakers in a room (and how those speakers interact with the room) has more influence on the sound quality of a music system than just about anything. Ensemble's ultra-slim subwoofers give you more placement flexibility than any system we know of, and are most likely to provide the performance you want in the real world...in your room. Having two, compact subwoofers lets you move them around, experiment, and find that placement that gives you exactly the sound you want. This is one of the reasons Esquire described Ensemble by saying "you get 30 days to return the speakers or keep them, but you'll keep them."

**New Woofers and Tonal Balance Controls.**

Ensemble maintains the tonal balance, frequency range and quality of construction of the original. There are two basic changes.

1. Ensemble now uses a new 8" woofer with a very long "throw" for more linear cone excursion and more accurate bass. An integral heat sink provides improved power handling.

2. Ensemble's satellite speakers use the same speaker drivers and crossover as the original, but with new midrange and high-frequency controls. The midrange control lets you choose the same output in the key 800-1600 Hz octave as in the original, or you can emphasize it by 2 dB. Ensemble satellites have relatively less output in this range to avoid "boxy" sound of many speakers. This results in an "open" sound on large-scale symphonic works.

For small-scaled music, the higher output position proves a "warmer" sound.

A three-position high frequency control can subtly increase the system's "airiness," or reduce any tendency towards "edginess."

We believe our Ensemble system competes head-on with speakers selling for hundreds more. Available with black-laminate subwoofers for $629," or with vinyl-clad subwoofers for $549."**

**Ensemble II**

Ensemble II is an improved version of our best-selling system. It's more affordable than Ensemble because it uses one cabinet for both subwoofer/satellite speaker system. Ensemble II maintains the tonal balance, frequency range, power handling and construction quality of the original. But its satellite speakers use the same new tonal balance controls as Ensemble's.

Ensemble II also has a new 12" subwoofer port. The subwoofer cabinet encloses two 6 1/2" long throw woofers mounted in a sealed "acoustic suspension" chamber. They project into a second chamber fitted with the flared port, which provides smoother air flow, eliminating extraneous noise on strong bass notes.

We think Ensemble II outperforms other speakers in its category, including well-known models for about twice the price. $459**

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**Ensemble III**

Ensemble III is our most compact, most affordable subwoofer/satellite speaker system. Its satellite speakers are only 4 1/2" x 6 1/2" x 3" and its subwoofer is 8" X 8" X 15". Compared to Ensemble II, Ensemble III gives up a little in power handling, low bass range, and efficiency. Unlike the "cube" satellite speakers you'll find in most similarly priced systems, Ensemble III's satellites are two-way speakers.

Ensemble II's 6 1/2" woofer uses two voice coils in a cabinet with a flared port for smooth air flow.

With most recordings Ensemble III will sound virtually identical to Ensemble II. It simply won't play as loud. Its construction quality is normally found only in much more expensive speakers. Price, including connecting wire, cutter/stripper, Hook-Up Guide and Dolby Surround Guide, is only $329.**

**We Eliminate The Risks.**

All Cambridge SoundWorks speakers are backed by our 50-day Total Satisfaction Guarantee. Try them in your home, with your music. If you don't like them, return them for a full refund. We even refund your original regular ground UPS shipping charges.

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** TEST REPORTS

Rotel RB985THX Five-Channel Power Amplifier

**JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES**

Rotel might not be as familiar to the general public as some other brands, but it is well known to serious audiophiles for the quality and value of its comprehensive line of audio products. Although manufactured in the Far East, the company’s products are designed and engineered in Great Britain.

The RB985THX five-channel power amplifier is a recent addition to the Rotel product line. As the model number indicates, it is approved by Lucas-film to carry the THX logo on its panel. Each of its identical amplifier channels is rated to deliver 100 watts into an 8-ohm load, from 20 Hz to 20 kHz, at less than 0.03 percent distortion.

The amplifier’s front panel gives few clues to its special qualities. Aside from the THX logo, a pushbutton on/off switch, and a small, red pilot light, its only visible feature is a vertical row of small LED protection-indicator lamps numbered 1 through 5. A preliminary examination of the amplifier’s interior revealed at least fourteen fuses, and there may have been other protective circuits that were not easily identifiable. Our tests were without mishap, however, so we were spared the need to identify or correct any problems.

The RB985THX’s rear apron, on the other hand, tells you unequivocally what it is meant to do. Along its lower edge are three groups of multiway speaker-output binding posts (which accept wires, lugs, or banana plugs). Above each group are the corresponding gold-plated input jacks (standard phono jacks). At the left and right sides of the rear panel, the speaker outputs and signal inputs are identified as for the surround and front channels, respectively. In the center of the rear apron is a group consisting of two sets of speaker-output jacks and a single

### DIMENSIONS

- **17 3/4 INCHES WIDE, 4 5/8 INCHES HIGH, 14 11/16 INCHES DEEP**
- **WEIGHT 35 POUNDS**
- **PRICE $1,000**

**MANUFACTURER**

Rotel of America, Dept. SR, 54 Concord St., North Reading, MA 01864-2699
In The Mid '70s We Created Home Theater. Now We’ve Created A New Way To Buy It.

The people who work at Cambridge SoundWorks—including our cofounder Henry Kloss (who also founded AR, KLH and Advent)—have been involved with the concept of home theater from the beginning. In 1969 (years before VCRs and cable TV), Henry Kloss founded Advent, the company that introduced the first home theater audio/video systems—complete with big-screen TVs and digital surround sound. We have had an ongoing relationship with the people at Dolby Laboratories, creators of Dolby Surround Sound, since Henry Kloss introduced the first consumer products with Dolby noise reduction over 20 years ago. And now at Cambridge SoundWorks we believe we have set a new price-to-performance standard for home theater components.

Because we sell carefully matched and tested home theater speaker systems Factory-Direct, and through cost-efficient Best Buy stores, you can save hundreds of dollars. We believe the products on these pages represent the country's best values in high performance home theater components. Audio critics, and thousands of satisfied customers, agree. Stereo Review said, "Cambridge SoundWorks manufactures loudspeakers that provide exceptional sound quality at affordable prices." Audio suggested that we may have "the best value in the world."

**Center Channel Speakers**
Cambridge SoundWorks manufactures three speakers for use as center channel speakers in Dolby Pro Logic home theater systems. All three are magnetically shielded so they can be placed near a TV or computer monitor. Model Ten-A is a small, affordable two-way speaker. $799. Center Channel is essentially identical to a Cambridge SoundWorks Ensemble satellite (but with magnetic shielding). $1499. Center Channel Plus uses an ultralow, ultra-wide design that is ideal for placement above (or, with optional support stand, below) a TV monitor. $2199.

**Surround Speakers**
Cambridge SoundWorks makes two “dipole radiator” surround sound speakers. Dolby Laboratories recommends dipole radiator speakers for use as surround speakers. The Surround has a very high power handling capacity and is often selected for “high end” surround sound systems. Audio, describing a system that included The Surround said, “In many ways the surround sensation was every bit as good as far more expensive installations.” $3999 pr. The smaller The Surround II is arguably the country’s best value in a dipole radiator speaker. $2499 pr.

**Powered Subwoofers**
The original Powered Subwoofer by Cambridge SoundWorks consists of a heavy-duty 12” woofer housed in an acoustic suspension cabinet with a 140-watt amplifier and a built-in electronic crossover. Stereo Review said it provides “deep powerful bass...31.5 Hz bass output was obtainable at a room-shaking level...they open the way to having a 'killer' system for an affordable price.” $6999 pr. Our Slave Subwoofer uses the same woofer, driver and cabinet, but does not include the amplifier or crossover. It can only be used in conjunction with the Powered Subwoofer. $2999. The new Powered Subwoofer II uses a 120-watt amplifier with an 8” woofer. $3999.

**Home Theater Speaker Systems**
We have assembled a number of home theater speaker systems that consist of center, surround, and main stereo speakers. The combination we show here is our best seller. It includes our critically acclaimed Ensemble subwoofer satellite speaker system (with dual subwoofers), our Center Channel Plus and a pair of our best surround speakers, The Surround. You could spend hundreds more than its $1,167 price without improving performance.

For information on other home theater speaker systems—or on any of the products we make and sell—call 1-800-FOR-HIFI for your free color catalog. Thanks.

**We Eliminate The Risks.**
All Cambridge SoundWorks speakers are backed by our 30-day Total Satisfaction Guarantee. Try them in your home, with your music. If you don’t like them, return them for a full refund. We even refund your original regular ground UPS shipping charges.

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input jack, all designated for the center channel. All the speaker binding posts are color coded (red, green, blue, or black) to identify their function and simplify installation.

Like some other Home THX-certified components, the RB985THX also has a computer-style DB25 multipin connector on its back panel. If your surround processor or preamp is a Home THX model that also has such a port, you can connect it to the amplifier with a single cable, eliminating the five separate RCA cables that would ordinarily be required. No more double- and triple-checking to insure that inputs and outputs are properly matched — a five-channel home theater hook-up actually becomes easier than an ordinary two-channel preamp/power-amp connection.

We tested the RB985THX while driving three channels simultaneously, but since they are identical, we made measurements on only one of them. Driving all five channels to reasonably high levels was not practical for logistical reasons (simply because it’s hard to find room for five bulky, heavy, and hot load-resistor assemblies in a relatively limited space). The standard FTC preconditioning period of 1 hour with the channels driven to one-third of rated power made the amplifier rather warm, but not uncomfortably hot. Later, when it was driving 4-ohm loads (the lowest load impedance Rotel recommends for use with the RB985THX), its exterior became still warmer, though not dangerously so.

As our test data show, the Rotel RB985THX is a real powerhouse of an amplifier, rated quite conservatively. It easily met or surpassed its specifications, with no external indication that it was anything unusual for a conventional amplifier of its size to deliver (at times) as much as 500 to 1,000 watts into 4-ohm loads. I am quite sure that if sufficient high-power load resistors had been available it would have performed consistently with all five channels operating simultaneously.

Actually, the use of identical amplifiers for all channels is probably overkill for a home theater installation, since unless the surround speakers are quite a bit less sensitive than the front speakers they should never require as much power (and certainly not for enough time to require such a robust amplifier as the RB985THX). Other applications can be imagined, however, in which having five separate high-power amplifier channels available would be handy, especially when the entire package is no larger (and not much heavier) than an ordinary stereo receiver.

Considering what it does and how well it does it, the Rotel RB985THX is an excellent value. Past experience with Rotel products also suggests that it is likely to keep on performing well for a long time.

### MEASUREMENTS

<table>
<thead>
<tr>
<th>All measurements made on one channel with three channels driven.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output at clipping (1 kHz)</td>
</tr>
<tr>
<td>8 ohms</td>
</tr>
<tr>
<td>4 ohms</td>
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<tr>
<td>Clipping headroom (re rated output)</td>
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<tr>
<td>8 ohms</td>
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<tr>
<td>Dynamic power</td>
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<tr>
<td>8 ohms</td>
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<td>4 ohms</td>
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<td>Dynamic headroom (re rated output)</td>
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<tr>
<td>8 ohms</td>
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<tr>
<td>Distortion at rated power</td>
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<tr>
<td>(THD+N. 100 watts)</td>
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<tr>
<td>8 ohms</td>
</tr>
<tr>
<td>Sensitivity</td>
</tr>
<tr>
<td>(for 1-watt output into 8 ohms) 100 mV</td>
</tr>
<tr>
<td>(1-watt output, A-weight) 100.2 dB</td>
</tr>
<tr>
<td>Frequency response</td>
</tr>
<tr>
<td>20 Hz to 20 kHz +0.01, -0.1 dB</td>
</tr>
</tbody>
</table>
Cerwin-Vega's large line of home theater speaker systems actually consists of various combinations of relatively few different components. Since each component is available separately, and there is no list-price advantage to buying them by the whole system rather than individually, you can mix and match to your heart's and wallet's content. But you can eliminate much of the shopping drudgery by accepting the company's choices in its preselected systems, one of which is the Powered System 6 tested here ($1,695 total).

Doing duty as the System 6's main front left and right speakers and as surrounds are two pairs of HT-S5 satellites ($330 a pair). The HT-S5 is a small sealed-box design using a 1-inch polycarbonate-dome tweeter and a 5-inch "midrange" driver. Cerwin-Vega doesn't call the latter a woofer because the low frequencies in the system are handled by an HT-10PWR woofer module and because the HT-S5 itself has a built-in low-frequency (high-pass) filter with a specified rolloff of 6 dB per octave below 125 Hz. In the home theater context, such a rolloff is a good idea because it reduces the distortion caused by pushing too hard at low frequencies a driver that cannot handle them. Crossover to the tweeter occurs at 7 kHz. Sensitivity is given as 91 dB sound-pressure level (SPL) at 1 meter with a 1-watt input, impedance as 8 ohms.

The satellites' black woodgrain, 6-pound enclosures measure a smallish 6 1/2 x 9 1/4 x 6 1/4 inches. All the separate manuals for the speakers in the system include a warning not to "suspend, hang, or wall mount" any of the satellites or the center-channel speaker "with any brackets, cables, chains, or hooks." Instead, they are to be placed on bookshelves or stands, with set-top placement for the center speaker also allowed. The HT-S5's do, however, come with their own wall-mount brackets, which are presumably okay to use as long as you follow the mounting instructions. Amplifier cables attach via spring connectors to all the speakers in the system except the woofer.

The HT-MDC center-channel speaker ($235) does not match the satellites either in driver complement or, it turns out, in sound. It does contain a 1-inch polycarbonate-dome tweeter but has two 5-inch cone midranges. It also apparently does not have the HT-S5's deliberate low-frequency rolloff. That is reasonable considering that when the speaker is used in conjunction with a Dolby Pro Logic decoder in Normal mode (as it should be for the HT-MDC), frequencies below 100 Hz in the center channel would ultimately end up being reproduced by the woofer box anyway. Rated sensitivity of the HT-MDC is 90 dB SPL, and its nominal impedance is 8 ohms. Finished like the satellites, in black woodgrain, the 11-pound HT-MDC measures 11 1/2 x 6 1/4 x 6 1/2 inches.

The most complex component in the system is the HT-10PWR powered woofer module ($800). It contains an amplifier rated at 100 watts driving a 10-inch, dual-voice-coil woofer with a die-cast aluminum frame mounted in a vented (bass-reflex) enclosure. The vent is on the front of the 55-pound box, which measures 18 1/2 x 13 x 16 1/4 inches standing up, although it can be used flat on its side as well. Also on the front of the enclosure is the woofer's volume-control knob (which has a maximum dial marking of 11) with a position-indicating LED, another LED indicating that the internal amplifier "has reached maximum power output and volume should be reduced," and the infrared sensor window for the supplied remote woofer-volume control. Since the handy remote has only two buttons (WOOFER-UP/WOOFER-DOWN), its control codes are prime candidates for programming into one of those universal remotes that come with some VCR's, TV sets, and A/V receivers.

The HT-10PWR's back panel has two input options: line-level phono jacks or speaker-level multiway binding posts. Both input connections have corresponding parallel-connected, loop-through outputs. That means that there is no high-pass filtering on the line-level outputs as there is with some other powered woofer modules. It's not essential in this case because of the low-frequency filtering in the satellites and the splitting-out of center-channel bass that occurs in Dolby Pro
Logic’s Normal mode. But the lack of such filtering may make the HT-10PWR a less-than-optimized match for some other speakers. The back panel also has a knob for varying the woofer crossover frequency between 45 and 150 Hz, as well as a polarity-flip switch. AC power enters via a 6-foot line cord with a two-prong plug. A switch sets the woofer for off, on, or automatic operation. When set to automatic, the woofer senses the presence of an audio signal and within 3 seconds turns itself on (power-off timeout is a generous 15 minutes).

Setup was typical for a home theater speaker system — you get lots of practice in wire stripping. The speaker-placement diagrams in the manuals were good guides, though I prefer to have the surrounds more directly to the sides of the listening area than they indicate and to have a wider left-right spacing in the front. We used our normal layout: front left and right speakers on stands away from the walls, center speaker either on a low stand in front of the TV screen or on top of the screen, and the surrounds elevated on high shelves directly to the sides of the main listening position.

Cerwin-Vega’s diagrams and the manual’s text emphasize corner placement of the woofer module, which happily coincided with where the HT-10PWR measured and sounded best in our listening room. A swept sine wave showed that the woofer delivered usable output down to 25 Hz, though vent noise started to become obvious about an octave higher (48 Hz). The noise was masked by most normal program material, however, becoming apparent only on pipe-organ pedal-solo passages. The low-frequency reinforcement provided by corner placement, in conjunction with the 100-watt amplifier built into the woofer, enabled us to produce very high bass levels on soundtracks without ever lighting its clipping indicator.

With the System 6’s HT-10PWR woofer module in a corner, we were able to get very high bass levels on soundtracks without ever lighting its clipping indicator.

And extending over a broad region from approximately 3 to 8 kHz. Such a lower-treble trough is a very common coloration, possibly because it can reduce the harshness characteristic of many pop vocals, which are often recorded using microphones having the opposite characteristic (a lower-treble boost). It also removes some of the natural “bite” of massed classical strings, however, and promotes a general tendency to steeliness and sibilance. All these effects occurred with the HT-S5’s but were more audible on music recordings than on soundtracks. The satellites were also surprisingly directional in the vertical plane for two-driver speakers, and for best sound the front satellites should be placed or aimed as close to ear level as possible.

Pink noise panned across the front speakers plainly showed that the response of the HT-MDC center speaker was distinctly different from that of the satellites. Listening to recordings and making response measurements showed that it was also decidedly better. Its low-frequency rolloff didn’t begin until 150 Hz, and its on-axis response above that frequency was an excellent ±2 dB up to around 15 kHz, with not a trace of a treble dip. It also exhibited considerably less measurable and audible distortion than the HT-S5 satellites between 150 and 200 Hz. The tonal mismatch of center to satellites resulted in slightly less precise imaging in surround operation than in plain two-channel stereo, with just the left and right front satellites operating, when imaging was very good.

The Powered System 6’s overall sound quality was good for its price, aided in no small measure by the fine performance of the HT-10PWR woofer module. But I’d be willing to bet, without testing, that a custom Cerwin-Vega system substituting two HT-MDC speakers for the front two HT-S5 satellites would actually be, at $1,835 ($140 more than the Powered System 6), a much better buy. Three HT-MDC speakers reproducing the front channels would yield both a closer sonic match and significantly more neutral sound.

Cerwin-Vega, Dept. SR. 555 E. Easy St., Simi Valley, CA 93065
THE WINNER!

The 11th Annual Rodrigues Cartoon Caption Contest

"If it weren't for my extra-long-throw voice coil, she'd probably leave me for someone with a bigger magnet."

sound the trumpets and all salute Douglas W. Alderman, of Novato, California, Dr. Alderman is the winner of the eleventh Rodrigues Cartoon Caption Contest, and his winning entry is printed under the drawing above.

As we have in previous years, in our issue of January 1995 we published a drawing by our regular cartoonist, Charles Rodrigues, and invited readers to submit captions for it. The prize for the one the judges consider to be the funniest is $100 and the original drawing.

The editors of STEREO REVIEW thank Dr. Alderman and the thousands of others who entered the contest. The quality of the captions submitted this year was unusually high. Entries came from across North America and from such exotic places as Hong Kong; Curitiba, Brazil; and Jarna, Sweden.

As in most previous Rodrigues contests, this year the musical composition mentioned in the most entries was Tchaikovsky’s 1812 Overture. Audio stars Amar Bose, Julian Hirsch, Henry Kloss, and Matthew Polk were mentioned along with Newt Gingrich, Speaker of the House. (Get it?) Many entries mentioned marriage counselors, cumbersome sleeping arrangements, who gets to be the right channel, and making beautiful music together.

We are grateful to our previous winners, who served as judges: Thomas Briggle (Wadsworth, Ohio), Michael Binyon (Weaverville, California), Bruce Barstow (Philadelphia, Pennsylvania), Matthew Mirapaul (Wilmette, Illinois), Marc Welenteychik (Richmond, Virginia), Douglas Daughtheete (Birmingham, Alabama), Kelly Mills (Raleigh, North Carolina), Diane Sullivan (Grand Falls, New Brunswick, Canada), Brian Hoffman (New York City), and Ron Haynes (Nashville, Tennessee).

This year’s winner, Dr. Alderman, is a dentist and a captain in the Coast Guard at present working in medical administration. He has been a subscriber to STEREO REVIEW for more than twenty years and is a dedicated audiophile who constantly upgrades his equipment. His interests in music are wide, ranging from rock, the Eagles, Abba, and Cher to John Denver. As he grows less interested in pop hits on radio, Dr. Alderman listens to more and more classical music.

A few runners up in this year’s contest are printed below. If you find one of these funnier than the winning caption, please don’t tell us about it. If your entry is not among the runners up this year, we wish you better luck next time. We will announce next year’s contest in January 1996.

— William Livingstone

RUNNERS UP

“You’re very astute. Most people don’t notice that I’m wearing a hairpiece.” — Edward Noroski, Budd Lake, NJ

“We started out as a console, but we’ve grown apart over the years.” — Steve Nazor, Riverside, CA

“I guess it’s no big secret. Blanche and I have been out of phase for years.” — Jim Rolando, Missoula, MT

“On a beautiful day like this we just toss the speaker grilles and go alfresco. Let the neighbors talk.” — Roger Vance, Crescent City, CA

“We have a spare pair in case you and the wife want to join us for some surround sound later.” — Eugene K. Althen, Black River Falls, WI

“They came with instructions, but I never read those.” — Pete Christianson and Jim Gerkin, Scottsdale, AZ

“And the other thing I don’t like about weekends is that the satellites are home from school.” — Richard A. Prentice, Charleroi, PA

“Relax, Fred. Lots of men have occasional problems with impedance. Just look in the Yellow Pages for a therapist who is THX-certified.” — Dan Geneen, Appleton, WI
Ways to Tune Up Your Home Theater

If you listen real close, late at night you can hear home theaters popping up like mushrooms all over the country. The boom is in full swing as Americans from coast to coast discover the movie, TV, and pure-music delights available from today's best home audio/video systems and media.

Whether you're starting from scratch or tweaking or upgrading an existing setup, there are probably steps you can take to upgrade your home theater performance. That may mean nothing more than fine-tuning what you've already got to extract its best performance, or it could suggest adding or replacing a component or two. However you approach the task, a few moments (or even hours) spent contemplating how to optimize your home theater experience can pay big dividends.

No-Cost Upgrades

There are some potential improvements that won't cost you even a thin one. First and foremost, with home theater sound, as in real estate, the three most important elements are location, location, and location.

1. Getting Centered
   Let's start with the center speaker — assuming your system includes one (if not, see below) — by which we mean a single loudspeaker located smack-dab on top of (or directly below) the video screen, dead center (or, better, behind) the screen if you're the lucky owner of an acoustically transparent front-projection screen. If your center speaker is anywhere else, move it. Systems that use two center speakers on either side of the screen or, worse, rely on built-in TV speakers as "dual" centers are just plain wrong. Only one thing can be in the center of anything else, and in the case of home theater sound we want a single speaker centered on the screen and as close to it as possible. Center speakers mounted back from the front of the screen, such as an in-wall design or a conventional speaker on a shelf above and behind the TV are usually poor solutions — too far away and almost always subject to bad reflections from the top of the TV, the walls, and other surfaces. Most speakers designed for center-channel operation are horizontal-layout models that simply sit on top of the video monitor. That's usually the optimal arrangement, but you'll probably get slightly clearer, more defined dialogue and other center-channel sound if you also slide the speaker forward just a bit, so that its cabinet actually overhangs the front of the screen by a half-inch or so. That will slightly reduce reflections from the screen, which have a surprisingly big impact on the speaker's sound.

2. Flanking Maneuvers
   Next, the main left-right pair. These speakers should be placed so that their midrange/tweeter axis is no more than
a foot or so higher or lower than the center speaker (lower is usually better). If the flanking speakers are vertically misaligned by more than a foot, sounds that pan across the front will seem to jump around, and the "being there" illusion will suffer. Most floor-standing speakers naturally radiate at a nearly ideal height (if your screen isn't too far off the floor); bookshelf speakers will need stands. If your current stands are too low, replace them or augment them with milk crates — or, of course, a classier solution of your choice.

The left and right front speakers should also be fairly close to the screen edges if that is practical. With a big-screen TV or a medium-size screen in a small room, that may put the speakers almost against the set; with a smaller screen, such as a 25-inch TV at a 10-foot viewing distance, you'll have to "cheat" and put them a couple feet or so away from the screen to get a decent stereo spread. But don't go too far, or you may start to lose integration between picture and sound. Remember that the surround speakers will contribute to the perception of spaciousness, so if necessary err on the side of closer together rather than farther apart — just the opposite of most folks' instincts.

3 TRIANGULATION

In many systems you find that imaging and smoothness of panning are enhanced if you arrange the front trio so that all three speakers are almost exactly equidistant from the "sweet spot" in front of the screen. If you think about the geometry a bit, you'll see that that means placing the speakers on the arc of a circle whose center is your nose, pulling the left/right pair inward anywhere from a few inches to a foot or two, depending on room size and viewing distance. It doesn't always work magic, but in many instances I've found that this simple tweak pulled everything together quite dramatically.

4 SPACING OUT

Surround-speaker positioning may not be the most important factor overall, but it's frequently the one with the most room for improvement. Ideal placement will vary depending on the type of surround speaker you're using. Dipole surrounds (which I think are quite worthwhile) should be on the side walls, roughly even with the listening position, and closer to the ceiling than the floor. That's far from always possible, however, and with direct-radiating speakers (like the compact bookshelf models frequently deployed for surround duty) it may not even be desirable.

Take some time to experiment: Turn off or disconnect the front speakers and play a movie with a lot of ambient sound and several strong surround effects while listening to the surrounds alone. Repeat while trying different arrangements of the surround speakers. Listen for the smoothest, "spacious" sound — that is, the sound that has the least tendency to "pull" the ear to one or another surround speaker. It's important to try for roughly equidistant placement of the surround speakers from the listening position. Otherwise the "precedence effect" will tend to pull the sound to the closer side no matter what you do — even in a system in which you can balance the outputs of the surround speakers individually.

Some setups to consider trying with direct-radiator surround speakers: on the side walls aimed backward toward the corners, on the floor against the side walls and aimed upward at the wall/ceiling junctions, and on the rear wall splayed outward and upward toward the side-wall/ceiling junctions. But pretty much anything your ingenuity can devise that works is "right" here; listen carefully, and be creative.

5 WOOF, WOOF

Because of the strong influence of room resonance modes and boundary reinforcement on low-frequency smoothness and extension, systems employing outboard subwoofers can benefit greatly from relevant placement experiments. Putting the sub near but not fully in a corner usually works best.

But for the adventurous, here's a potentially useful and instructive subwoofer-placement trick: Put the subwoofer where you normally sit — that is, in the prime listening/viewing position (you'll probably have to move your couch or chair out of the way temporarily). Hook the subwoofer up and repeatedly play a scene or track with relatively steady, deep, and powerful bass. Now move about the room, listening for (and marking) the spots where you hear the smoothest, most extended, yet clearly defined bass, while rejecting the ones where mid-bass boom or thinness are apparent — you'll hear some, trust me.

The best spot you find is where the subwoofer should go permanently when you reclaim your rightful place on the sofa (Barcalounger, whatever). But note that to obtain fully valid results you'll really need to crawl around the room on your back like a beached turtle, so that your head and ears are roughly where the subwoofer would be — standing up drastically changes things, as you can readily demonstrate. I therefore strongly advise that you perform this routine when you are alone and unobserved!

6 REFLECTIONS

Before we leave speakerdom altogether, I want to suggest one more experiment. Room reflections play havoc in most audio systems, so anything we can do to control them helps. (Bookshelves, filled with real books, are very desirable, as randomly sized books make excellent diffractors.) In a typical home theater the single most destructive reflection is that of the center speaker off the ceiling to the primary listening position. Try this (you'll need an accomplice): While sitting at the prime position, have your assistant hold a mirror about a foot square (or round) flat against the ceil-
VIDEO TWEAKS

TWEAKING YOUR PICTURE is a more limited field, but not an empty one. Obviously, the best picture-enhancing move you can make is to buy a bigger, better video display system — but that is far from "free," so we'll pass it by for now. Tuning up the one you already have is highly recommended, however.

7 A SCREEN TOO FAR

First is the question of viewing distance: You're probably sitting too far away. Theoretically, to get something even remotely resembling a theatrical field of vision, you need to sit about 6 feet from a 32-inch TV or about 9 feet from a 45-inch rear-projection set. That's too close for most folks, but closer is usually better. Find the closest comfortable position, where the video scan lines are not too obvious, and work from there.

8 BACK OFF!

Next, set up the screen itself. Most TV's are set far too bright and with far too much chroma intensity (the "color") control), usually to compensate for bright room light. Try dimming the lights a little (or a lot) and turn both the contrast (or "picture") and color controls down until brightly lit scenes start with. For more — much, much more — on monitor setups, buy (or beg or borrow from a friend or a helpful dealer) a copy of the laserdisc "A Video Standard" from Reference Recordings (LD-101), which includes reams of useful information, scores of invaluable video (and audio) test signals and patterns, and lots of worthwhile advice.

9 LIGHTING

Another word about room lighting: Less is more. That is why TV production studios are always crepuscular: Dark rooms enable the low-intensity pro video monitors, which are more correct chromatically than most home models, to work properly. Try tweaking your TV for a room with no direct lighting except a 40-watt lamp on either side of the screen (as far apart as possible). With no reflections on the screen, and low but adequate ambient light, you give the set a fighting chance to present its best image.

LOW-COST UPGRADES

THERE ARE A FEW low-cost home theater refinements that are usually well worth trying. Many more are low-cost relative only to the price, say, of a weekend in Bermuda, but are still highly recommended.
a thing for your audio or video reproduction, but it can do a great deal for your own attitude. Some main-system components come with good remotes; many do not. A wide variety of after-market models are available. Look for good ergonomic design elements such as well-delineated key groups with varying sizes and shapes to make feel operation easy. Many of these remotes are preprogrammed with all the codes you’ll need, and several feature “macro” capabilities that enable one-touch operations: For example, a single key could be programmed to turn on the system, select the laserdisc input and Pro Logic mode, adjust the volume to your normal listening level, and commence playback. Cost: typically $30 to $100.

NOT-SO-LOW-COST UPGRADES

NOW TO THE FUN PART: buying neat stuff. A home theater offers even more upgrade and add-on opportunities than a straight audio system. Choose well, and you can make big strides in improving audio/video performance.

14 CENTER UP
If your system doesn’t include a high-performance center speaker, run right out and buy one. Consider a model made to match the sound of your main left and right speakers, if those are “keepers.” But if a new center speaker would mark the first step on a long, gradual upgrade path, pick out a top-notch model you like and plan from there. Remember, the center is the single most important speaker for reproducing movie sound. Cost: typically $150 to $500.

15 GET SURROUNDED
A pair of good dipole (or other special-purpose) surround speakers can truly open your ears to well-produced movie and TV soundtracks. And if your room layout lends itself to proper placement, a spookily realistic experience of sonic envelopment awaits you. There are dozens of excellent surround models, both Home THX-certified and not. Cost: $250 to $1,000 a pair.

16 BEAM UP
Consumer video’s highest-quality source delivers the best picture and sound — and convenience. Yes, laserdiscs are relatively expensive ($25 to $45), and rentals are much tougher to find than for videocassettes. And yes, digital videodisc (DVD) is coming — someday. But if you want the peak experience that your home theater can supply right now, laserdiscs are still the way to fly. Virtually all current laserdisc players are “combi” models that double as very good audio CD players as well. Cost: $400 to $1,000 and up.

17 GET DOWN
If your system sounds great but lacks the bone-activating deep-bass grunt of the best cinemas, an easily integrated powered (“active”) subwoofer is the answer. Many powered subs, including some very powerful, extended-bass designs, are surprisingly compact. Cost: $500 to $1,200 and up.

18 POWER UP
Many a home theater could benefit from additional audio amplification. There are now a huge variety of power amplifiers configured to make augmenting a receiver-based home theater system easy and nearly as many that are ideal for ground-up refits. When it comes to power, the more the merrier. Cost: $400 to $1,200 and up.

NO SINGLE ADDITION CARRIES MORE IMPACT THAN A BIG SCREEN.

19 THINK BIG
There is no single addition you can make to a home theater that carries more impact than a big screen. Let’s face it: The picture dominates our consciousness most of the time, and a bigger picture is more, well, dominating. Big-screen TV’s have improved significantly in the past five years or so while almost holding the line on price. So before you reflexively choose an under-$1,000 30- to 35-inch direct-view screen (the most popular choice, and by no means a bad one in terms of performance and value), check out some 40- to 60-inch rear-projection models, especially the new-generation “widescreen” designs that can entirely fill their displays with today’s letterboxed laserdiscs and tapes. Such a set will cost two to five times as much, but the difference in impact is immeasurable. Cost: $2,000 to $5,000.

20 MATCHED SETS
Once you’ve heard the real thing, it’s hard to go back, so the best advice is not to audition the high-end stuff until you’re ready to shop seriously. A matched-design five-speaker-plus-subwoofer surround system with plenty of amplifier power is a dramatic thing. There are both Home THX and non-THX systems that truly push the envelope, and many of them are surprisingly livable size-wise. Cost: $1,800 to $6,000 and up.

21 FLIP ON THE BIRD
RCA’s remarkable DSS small-dish (18-inch) digital satellite system — soon to be marketed by Sony, too, and eventually by Toshiba, Panasonic, and a host of others — is impressive. It’s not perfect, but it delivers picture and sound that in many respects rival, or even beat, laserdisc. And for those without access to cable, or for whom a big dish is out of the question — well, say no more. In addition, DSS is hard to beat for convenience and variety. It ain’t cheap, however (at least, not yet). Cost: $800 to $950 installed, plus about $21 to $70 per month.
SHOPPING SMART

A low-stress guide to buying better

BY BERNARD R. KINGSLEY

You've looked at brochures, talked with friends, read articles in STEREO REVIEW, and drooled over advertisements. Now you are ready to shop for that new piece of hi-fi equipment. Your biggest fear, at this point, is the salesperson. The fact is, a large number of customers are anxious and unhappy about dealing with sales staff, and the stores know it.

Salespeople are, in the minds of many, slick pitchmen who will push merchandise you don't want so that they can earn big commissions. But unless you plan to shop through a catalog (more and more of us do), you are likely to end up dealing with salespeople, and the experience can be surprisingly helpful as long as you (and they) follow some simple guidelines.

Greeting and Qualifying

Sales staff will begin contact with you by trying to establish a good basis for communication. Only the most inexperienced will ask, "Can I help you?" because the knee-jerk reaction is almost always, "No, I'm just looking." True, you may believe that the sales staff will keep you from exploring the merchandise, but good salespeople will offer to guide you to a range of products you might be interested in. One salesman I met had the perfect answer to "just looking." He said, "Great. You can touch these, too, and really get a feel for what the product can do."

You should know that you were selected by the salesperson in a very unscientific manner. Most stores have an "up" system, meaning that salespeople take turns approaching new customers. Only the busiest stores will allow contact with anybody who happens to be available.

The fact that you have wound up paired with a particular salesperson does not mean you must deal with him, however. If you feel that you and the salesperson just don't hit it off, "shop around" for a different one. You might even ask the manager to assign a salesperson to you after a brief discussion of your needs. That would later offer you the advantage of being recognized as a serious customer.

Successful salespeople try to find out what the customer wants, and you are therefore likely to be asked some questions. The process is called qualifying the customer, and you can help yourself if you are willing to open up a little and disclose certain things.

You might be asked about the kind of music you listen to, the components you have in your system now, and the size of room you listen in. That information reveals both what you need and what you want. Price is tricky. Most customers don't want to disclose their budgets, but you can

Successful
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SHOPPING SMART

If a component has many more features than similarly priced models, ask where compromises were made.

Features, Features

Many electronic components are priced according to features (not necessarily quality), and it will help if you give some indication of what your preferences are. The fact is, manufacturers are able to build almost any product to sell at almost any price. An autoreverse cassette recorder with plenty of bells and whistles can be priced at $49. There is certainly a market for such a deck, but not among people who are serious about sound and construction quality.

Perhaps the biggest frustration salespeople have is that many customers forget quality and concentrate almost entirely on features. Remember to think about both. The whole purpose of buying a high-fidelity component is to get good sound. If a product is loaded with features while competing models at the same price have far fewer frills, you should wonder where compromises were made. There are few secrets to building audio components, and no one manufacturer has a lock on efficient production.

Your listening session should be with music you typically listen to. If the salesperson has done a good job, he or she will already have prepared for that. It’s best, of course, to bring your own CD’s.

Objections

Most customers don’t buy anything, and usually the salesperson doesn’t have a clue as to why. Much of a sales presentation involves finding out just what a customer is objecting to. “I want to look around some more” doesn’t tell the salesperson where he failed. Be direct. If you are looking for other brands, different features, or a better price, say so. Such feedback not only helps you focus on your product choice, but it also informs the sales staff, the retailer, and ultimately the manufacturers about what the public’s preferences are.

Negotiating

Negotiating price is more common in other countries, so it comes as no surprise that foreign nationals in the United States tend to haggle as they do in their own countries. What might surprise you is that they are often quite successful. Don’t assume that the price quoted is the final price. Even mass-market stores will discount at times if the purchase is significant (they won’t discount that $49 deck). Stores will discount to keep a customer, to meet a sales budget, or to clear out remaining inventory.

Discounts are more likely to be available at the end of a month (to meet a sales budget), and usually only managers are allowed to reduce price. Discounts can range from 10 to 25 percent on most items. Accessories and speakers may be discounted even more, since they tend to have higher profit margins. Accessories can come into the sale as a bonus, too. If the dealer won’t budge on the price, try to get some accessories included. Throwing in a free case of tapes with a tape deck or a set of stands with speakers can improve the value to the customer and thus make a sale.

The key to negotiating is to make it clear that you are ready to buy now. Few managers will bargain unless it is certain that you are willing to put money on the table if you are presented with a meaningful discount.

Making It Long-Term

Electronic equipment has become highly reliable, but everything built by man is bound to break sooner or later. At the time of sale, make yourself familiar with the warranty and the service facilities. If there isn’t a service department you should definitely inquire as to how the store plans to handle future problems. Stores with lots of service may not always have the lowest prices, but they may nonetheless offer the best value.

Building relationships with dealers and salespeople can make buying hi-fi equipment much more rewarding. The most successful sales counselor I have ever known was a guy named Frank who seldom looked for customers on the sales floor. It never ceased to amaze me that so many customers came in asking for Frank. Customers knew that they could rely on him to direct them to good products and to help them later with service problems. Frank was not only successful, he was happy in his job. I bet his customers were happy, too.

Bernard R. Kingsley has worked as a sales counselor and sales manager for a number of consumer-electronics retailers.
Why you should pay $349 for this radio.

Obviously, it better not be just another radio. This one isn't. Quite simply, the Bose® Wave® radio gives you sound that's richer, more natural, more lifelike than you've ever heard from a radio. Many people think it actually sounds more like a stereo system. It's no exaggeration to say you have to hear it to believe it.

Finally, Bose sound from a small radio.

The Wave® radio is from Bose, one of the world's leading makers of audio equipment. A few years ago, we undertook the task of getting Bose-quality sound from a small radio. To do it, we used our patented acoustic waveguide speaker technology. Just as a flute strengthens a breath of air to fill an entire concert hall, the waveguide produces room-filling sound from a small enclosure.

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Bose
Better sound through research®
It's hard enough to build a loudspeaker that's able to reproduce the intricacies of music accurately, let alone one that sounds good and can be left outside in all kinds of weather. A true outdoor speaker should be able to withstand the effects of rain, wind-blown dust, heat, cold, humidity, salt (in coastal areas), airborne pollutants (in cities), and ultraviolet (UV) rays, not to mention assorted insects, birds, and four-legged critters. In other words, it must be made of materials—like aluminum and special plastics—that resist corrosion and tolerate temperature extremes. Otherwise, driver cones and surrounds will crack or melt, voice-coil formers and other critical components will be thrown out of whack, metal parts will corrode, glues will break down, and enclosures will deteriorate.

Given the challenges of building a speaker that can withstand all the elements in Mother Nature's arsenal, we wondered how many outdoor speakers actually live up to their name. Can you really leave them outside all the time? Even in the winter? We were also anxious to find out how all-weather speakers stack up in terms of sound quality. To shed some light on these questions, we chose ten models—out of more than a hundred on the market today—and put them through their paces, indoors and outside. The test candidates were selected with an eye toward variety in rated performance, styling, and price—ranging from $159 a pair to a still-reasonable $499 a pair.

The contenders: B.I.C. America's Adatto ($159 a pair), Bose's Model 151 ($299 a pair), the Boston Acoustics Runabout II ($250 a pair), JBL's ProIIAW ($330 a pair), the NEAR AE-1.4 ($450 a pair), Parasound's Nomad 10 ($499 a pair), Pioneer's CSL-70E ($369 a pair), the Polk Audio AW/M5 ($450 a pair), the Rockustics Econorock ($400 a pair), and Sonance's MB20 ($399 a pair).

All but two speaker pairs were evaluated in three phases. Phase One started with inspecting each speaker and performing a knuckle-rap test—simply tapping the enclosure to disclose unwanted cabinet resonances or a ringing grille. Then I set the speakers up in my listening room and measured frequency response (on-axis and 30 and 45 degrees off-axis), sensitivity (at 1 meter with a 1-watt input), and impedance to get a feel for their performance. Measurements were made with the speakers placed both on stands away from the wall and on stands next to the wall (to gauge the effects of boundary reinforcement on bass response). Of course, I also listened to each speaker pair playing a variety of music ranging from classical to pop to rap.

Phase Two consisted of a battery of frequency-response measurements and listening tests conducted outdoors.
CHALLENGE

10 speakers for the great outdoors
Eight of the speaker pairs, those meant for wall-mounting, were successively installed 10 feet apart in two locations: directly under a soffit, facing out toward the patio in my backyard, and 3 feet below the soffit and about 6 feet from the ground, so that they were in the middle of the wall. The speakers were mounted on either side of a sliding glass door. The wall to which they were fastened ends in a corner at the right, where it adjoins a 5-foot-long wall (2 feet away from the right speaker position). A wooden-slat privacy fence butts up against the 5-foot wall. Following the manufacturers' recommendations, I placed the other two speaker pairs, the Rockustics Econorocks and Pioneer CSL-70E, out in the yard. Each stereo pair was spaced 10 feet apart, the Rockustics sitting on the ground and the CSL-70E's elevated on stakes. These two speakers were tested in only one location.

For the listening tests, I was seated 12 feet away on the patio, equidistant from each speaker in the pair under test. I evaluated the speakers in terms of spectral balance and definition (the ability to play cleanly and sound natural), spatial rendition (or imaging, the ability to locate sounds accurately in space), and dynamics (the ability to play loudly with grace).

Phase Three involved taking one speaker from each of eight pairs to a local lab, where they were frozen, baked, and sprayed with water in an effort to gauge long-term durability (see "Life Testing" at right for the results). When the torture tests were complete, I compared the frequency response of each environmentally challenged speaker to that of its sibling. We excluded B.I.C. America's Adatto and Parasound's Nomad Ten from this round of testing because the Adatto is not designed to withstand temperature extremes, and the Nomad Ten was a preproduction prototype.

**BOSTON ACOUSTICS RUNABOUT II**

One of three "indoor/outdoor" loudspeakers from Boston Acoustics, the midprice Runabout II is described as being "ideal for decks, patios, or indoor use." Its 4½-inch woofer and 3/4-inch tweeter are housed in a polypropylene-resin enclosure with a paintable off-white finish and an epoxy-coated steel grille. The sealed cabinet is sturdy and acoustically inert. A hard rap on its side returned a dull thunk (and sore knuckles) with no hint of ringing, and when I accidentally dropped one of the speakers onto a cement patio stoop from a height of 8 feet (ouch!), it survived without a scratch. Signals enter the Runabout via a recessed pair of gold-plated binding posts, and the speaker comes with a pair of epoxy-coated-steel C-brackets that accommodate either vertical or horizontal mounting and provide a full 180 degrees of swivel action.

In my listening room, the Runabout II proved to be an excellent-sounding speaker, though it was a bit shy in the bass department. Response was almost perfectly flat from 200 Hz to 20 kHz, even when measured 45 degrees off-axis. As with most speakers that have a small woofer, its low-frequency output was restrained below about 200 Hz, but moving the speakers next to the wall extended output to below 90 Hz. Sensitivity clocked in at a respectable 91 dB. Although Boston Acoustics rates the speaker for 8 ohms, the impedance hit a minimum of 3.6 ohms.

**LIFE TESTING**

There are two ways to predict how well a speaker is going to hold up under direct exposure to the elements. You can stick it outside and simply monitor its performance over a period of time, or you can take it to a laboratory that specializes in "accelerated life testing." If you've got a year or two to spare, the first approach might provide a fairly reliable reading on the speaker's resilience. Then again, if you happen to hit an exceptionally mild summer or winter, it might not. That leaves accelerated life testing as the most practical means of evaluating the longevity of outdoor speakers.

Since most of the speakers in our test group are covered by a five-year warranty, we arranged to have one speaker from each of eight pairs (excluding BIC America's Adatto and Parasound's Nomad Ten) subjected to a series of accelerated life tests. Conducted at International Jensen's R&D facility in Schiller Park, Illinois, the tests were designed to simulate five years' worth of intermittent exposure to water and temperature extremes common in the U.S. Each speaker was exposed to four cycles of a 2-hour rain bath (250 cubic centimeters of water per minute for an hour, followed by an hour of play with an 8-watt input). Temperatures were cycled between -20° and 120° Fahrenheit for 8 hours. And, finally, each speaker was "soaked" at 100-percent relative humidity (RH) at 100° F for 16 hours, then dried at 120° F at 20 percent RH for 8 hours.

Although this lineup of tests may have been less stringent than those imposed by some of the manufacturers themselves — we didn't do UV, dust, or salt-spray tests, for example — I was impressed when the post-test frequency-response measurements for all eight models turned out to be identical to the measured responses of their uncooked siblings. Furthermore, none of the battered speakers looked any different. No fading, cracking, peeling, or rusting.

Beyond the rigors imposed by harsh weather, another factor that's guaranteed to affect the longevity of all-weather speakers is incoming power. It's all too easy to pump too much juice into a pair of outdoor speakers because it's hard to gauge actual volume levels outside. That's why it's always a good idea to stick fairly close to the recommended amplifier power limits.

— T.N.
providing excellent sound quality both on the patio and in the living room. My only complaint: the one-year warranty seems a bit skimpy.

**BOSE MODEL 151**

Beyond temperature extremes and direct exposure to rain, Bose’s Model 151 “environmental” speaker is also rated to withstand the ultracorrosive effects of salt water. Its 4½-inch full-range driver is housed in a tough polypropylene cabinet with a painted stainless-steel grille and two recessed binding posts in the rear. While the enclosure is acoustically solid — my knuckle-rap test returned a nice dull clunk — I got the grille to ring slightly with a firm whack. The only mounting provisions are a pair of threaded inserts on top of the speaker’s cabinet; two different brackets are available as options.

In my listening room, the Model 151’s response sloped downward from around 300 Hz and extended out to about 12 kHz measured on-axis. The bass was pretty thin until I moved the speakers next to the wall, which extended response down to roughly 100 Hz. Off-axis response began rolling off above 8 kHz at 30 degrees and above 3 kHz at 45 degrees. Sensitivity registered a healthy 91 dB. Impedance drooped to a minimum of 3.7 ohms.

While you could use simple wire straps or L-brackets to mount the 151’s, I used Bose’s optional SM-1 bracket assembly ($44 a pair). I affixed each bracket to the wall behind my patio using a couple of drywall screws. Then I fastened a curved fixture to the top of each speaker cabinet using the supplied machine screws. Finally, I slipped the speaker fixture into the wall bracket and used another pair of machine screws to tighten things down. (The bracket has a dozen screw slots, which allow you to adjust the angle of the speaker.) The installation was pretty straightforward, although I had to huddle a bit with the last two screws to get them in.

Outside, the Bose 151’s proved to be less sensitive to placement than most of the other test candidates. In other words, when I moved them from the soffit to the midwall position, the changes in measured response weren’t as dramatic as they were with most of the competition. Sound quality was smooth and easy, particularly at the midwall location — which, by the way, is where Bose recommends mounting the speakers. Vocals were only slightly colored, and saxophones and trumpets were only a tad squeaky. Although overall sound quality was not quite hi-fi, it was still very satisfying. Imaging from my preferred patio seat was better than with any other speaker in the group, most likely a byproduct of the 151’s relatively directional radiation pattern. The 151’s also exhibited excellent dynamic control — that is, no buzzing or rattling under normal operating conditions.

In the final analysis, the Bose Model 151 was the most versatile speaker of the lot. Between its compact size and marine rating, you should be able to use it just about anywhere without reservation.

**POLK AUDIO AW/M5**

Polk Audio’s AW/M5 is the all-weather version of the company’s M5 home speaker. The wedge-shaped polymer enclosure housing its 6½-inch woofer and 1-inch tweeter is described as impervi-
not overwhelming. The speakers' oration, for example, was noticeable.

the AW/M5's sounded decent, but the back of the cabinet) while holding cause you have to line up the pegs (on a light touch and a little patience be-

United the cabinet and bracket by inserting a couple of screws. Then I re-

bracket on the wall next to my patio et from the enclosure, I fastened the two plastic pegs to separate the brack-

manual beforehand. After removing install as long as you check out the

Polk's 8-ohm rating, impedance bot-

response, 65 Hz to 20 kHz ±3 dB

specifications: frequency

MB20

each), and MTC-3 ceiling bracket ($99 each)

driver complement: 5-inch polymer-laminate woofer; 1-inch titanium-

dome tweeter

specifications: bandwidth, 65 Hz to

dimensions: 91/4 x 61/4 x 51/4 inches

weight: 4 1/4 pounds

warranty: 5 years

price: $330 a pair

manufacturer: JBL, Dept. SR, 80 Crossways Park West, Woodbury, NY 11797

The MB20 is one of five “in-

doors/outdoor” speakers available from Sonance, the compa-

y best known for its extensive line of in-wall speakers. It packs a 61/2-inch woofer and a 1-inch tweeter in a “wa-

ter-resistant” ABS-plastic enclosure that is paintable and available in black or white. Incoming speaker wires are secured by a pair of spring-clip connectors on the back of the cabinet. While the MB20’s sealed cabinet appears solid, the ol’ knuckle test produced a hollow knock — and a metallic ring (courtesy of its steel grille) — when I tapped harder. A nail-hanger mounting plate with two slotted screw holes is supplied.

In my listening room, the MB20’s output extended down to about 50 Hz and exhibited an upward-sloping characteristic that flattened out off the main axis. Although its response curve was fairly uniform, it didn’t fall within the ±3-dB window specified by Sonance. Sensitivity measured 86 dB, and impedance reached a minimum of 7.1 ohms, making the MB20 suitable for parallel hookups.

The supplied nail-hanger plate provides a simple yet effective mounting system, although I wouldn’t trust it to hold the speakers during a hurricane. First I secured the plate to the back of the speaker using two screws. Then I simply hung the speaker on a couple of screws I had put in the wall. There was one minor complication: I had to enlarge the “nail” holes slightly, which probably wouldn’t have been necessary if I had used a nail or a different type of screw. Optional mounting brackets are available from Sonance if you want a more permanent installation or need a bracket that lets you aim the speaker’s output.

Although its output was plagued by interference patterns (mostly from side-wall reflections) in both the softit and midwall locations, the MB20 sounded as good outside as any other...
A small port on the speaker’s baffle has an internal screen to keep those pesky bugs out. The knuckle test produced only sore knuckles; thanks in part to the thick rubber gasket that separates the metal grille from the enclosure. No mounting hardware is provided, although JBL offers three optional brackets.

Indoors, the ProIIIAW’s response was smooth and nicely balanced out to 20 kHz measured on-axis. Bass fell off quickly below 200 Hz without wall reinforcement. Moving the speakers next to the wall filled the gap down to about 100 Hz. Sensitivity was 90 dB, and impedance hit a low of 3 ohms.

JBL didn’t provide any mounting hardware, so I simply hung the speaker on a hook screw — definitely not a permanent mounting solution.

Like most of the other speakers in the test group, the ProIIIAW sounded best when it was mounted midwall, which greatly minimized the colorations produced by soffit reflections. Overall, the speaker was quite clean sounding, delivering a tight center image and lots of detail. Of course, there was no bass to speak of, but it was able to play very loudly without breaking up.

JBL’s ProIIIAW is a very flexible speaker that should find a home in most outdoor applications.

**ROCKUSTICS ECONOROCK**

Now for something really different — a speaker that looks like a prop from the set of The Flintstones. Set by itself on the patio, the Econorock doesn’t look quite like a real rock (its perforated “grille” is plainly visible), but I’m sure its crushed-stone and resin exterior will fool plenty of people when it’s in a garden or among shrubs. Described as “weather and waterproof,” it’s one of fifteen all-weather speakers available from Rockustics, a company specializing in rock-like outdoor speakers that sell for $300 to $1,800 a pair. The Econorock has an 8-inch coaxial driver and is designed to sit directly on the ground. Speaker-wire connections are handled by a stripped pair of wire pigtails that protrude from its base. Contrary to the manufacturer’s claim that one Econorock weighs less than 10 pounds, the samples I tested weighed about 19 and 21 pounds, respectively. These rocks are solid, so I gave my battered knuckles a rest.

Sitting on the carpeted floor of my listening room — a sight to behold — the Econorocks played down to 60 Hz with authority. Low-frequency reproduction was smooth and natural, making the Econorock the best bass performer of the test lot. Even so, pipe-organ recordings were still out of the question. On-axis response exhibited considerable roughness above 1 kHz — most noticeable was a large peak at 3 kHz. Sensitivity was below spec at 87 dB and impedance dropped to 3.8 ohms at its lowest point.

Although most Econorock owners have the speakers professionally installed, any reasonably handy person should be able to handle the job. Rockustics even provides an 800 number for technical support. Other than joining bare wires together and burying or hiding the speaker cables, installing the rocks requires nothing more than picking the best-sounding location for each speaker.

The Econorock’s low-frequency performance was nearly the same on the grass as it was on the carpet — robust down to 60 Hz. There was also a peak at 3 kHz, and the response was pretty uneven overall. Still, the col-
behind my patio using the optional U-hit bottom at 3.7 ohms. Sensitivity was 89 dB, and impedance began rolling off gently above 8 kHz.

of the frequency spectrum, response down to about 60 Hz. At the other end wall, however, its output extended rather lackluster in the bass depart-

ment, with rolloff starting at 300 Hz. I was pleasantly surprised by the Econorock’s performance — especially at the low end. The rocks sounded fairly open and clear. But when they were driven hard, the high frequencies sounded pinched and squawky. On the plus side, there was no buzzing or rattling, even when I pushed the rocks way beyond their recommended 70-watt limit.

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NEAR AEL-1.4

The folks at NEAR (New England Audio Resource) take the outdoor speakers they make very seriously — so seriously that they have been known to attract attention at Consumer Electronics Shows in recent years by playing a speaker while it’s completely submerged in a clear barrel filled with water. The AEL-1.4, one of six all-weather speakers from NEAR that range in price from $318 to $1,200 a pair, teams a 5 1/2-inch woofer (the same one used in the water demo) and a 1-inch tweeter in a high-density polyethylene enclosure with a pair of binding posts on its back panel. When subjected to the knuckle-rap test, the cabinet emitted a slightly hollow thunk but the plastic grille was silent. No mounting hardware is supplied, but NEAR offers optional brackets.

Indoors, the AEL-1.4’s output was rather lackluster in the bass department, with rolloff starting at 300 Hz. When I moved the speaker next to the wall, however, its output extended down to about 60 Hz. At the other end of the frequency spectrum, response began rolling off gently above 8 kHz. Sensitivity was 89 dB, and impedance hit bottom at 3.7 ohms.

I secured the AEL-1.4’s to the wall behind my patio using the optional U-bracket ($40 a pair) — a task that involved fastening the bracket to the wall using drywall screws and the bracket to the cabinet using two supplied machine screws, one on each side. The hardest part of the job is keeping the 12-pound speaker steady on one side. The easiest part of the job is keeping the 12-pound speaker steady on one side. The easiest part of the job is keeping the 12-pound speaker steady on one side.

outside, the AEL-1.4’s response was affected by the same interference patterns that plagued all of the test speakers. Vocal colorations were fairly strong at the softfit location but improved when the speakers were placed midwall. Depending on my listening position and the program material, the image sometimes wandered from side to side. Low-frequency performance was above average for the test group, and the AEL-1.4’s were able to play very loud with excellent impact, although the presentation got hard and metallic as the speaker approached its power-handling limits.

PARASOUND NOMAD TEN

Parasound's Nomad Ten is the flagship in a new five-model series of "surround/outdoor" speakers that range in price from $120 to $499 a pair. Described as "completely weatherproof and ideal for patio or pool installations," it combines a 6 1/2-inch woofer and a 1-inch tweeter in a glass-filled polypropylene enclosure with a pair of gold-plated binding posts on its back panel. Unfortunately, the Nomads we received were production prototypes, so they didn't have the integral ball-joint bracket that will appear on the final version, which should be in stores by now. A rap of the knuckle on the side of the cabinet returned a soft, hollow clunk.

Indoors, the Nomad Ten’s measured response rolled off below 200 Hz and had a 12-dB peak at 12.5 kHz. Bass response dipped down to about 50 Hz when I moved the speakers next to the wall. Sensitivity was 87 dB, and impedance fell to 6 ohms.

Since Parasound didn’t provide any mounting hardware, I used a bracket from one of the other speakers to secure it to the wall outside. On the patio, the Nomad Ten had the best bass response after the Econorock, but it tended to lapse into fuzzy distortion when played loudly enough to overcome traffic noise. There was also some vocal coloration, and detail was below average compared with the competition. But the Nomad Ten’s biggest sonic limitation outdoors was in the dynamics department. That would not be a problem, however, if the speaker were used indoors for surround duty in a home theater setting.

PIONEER CSL-70E

From Pioneer Electronics Technology, a division of Pioneer that specializes in speakers, comes the oddly styled CSL-70E, which looks like a prop from the set of
from the ground provides decent lateral coverage for a relatively large area. While mounting a pair of speakers about 10 feet apart and 6 feet from the ground provides decent lateral coverage, the combination of direct rain and sunlight, but from a sonic standpoint, it has its problems. Sound reflected from the overhang can create strong interference patterns. And the closer the speaker is to a corner, the more interference.

Another interesting sonic condition materialized in my patio listening tests. The aluminum siding on neighboring houses created a slap-echo effect. At one point, synthesizer thwacks "walked" over to the neighbor's place and back. One way to avoid this problem is to place the speakers out in the yard, facing away from the Joneses.

The other general problem with outdoor speakers is that it's really difficult to get decent bass outside. Our tests revealed that soffit and midwall mounting provided significant bass reinforcement (usually above 60 Hz), but that effect was usually muted by a huge boost around 200 to 300 Hz. Even the Rockustics Econorock, with its 8-inch woofer, was pretty much out of the bass game by 60 Hz. The moral to this story: Outdoor speakers can sound acceptable with a good deal of rock and pop music, but you can forget about pipe-organ music or gut-thumping rap.

Despite these sonic maladies, I was pleasantly surprised at how good many of the patio-challenged speakers sounded. All were able to play loudly enough to be easily heard, and their sound, more often than not, was surprisingly clean.

Using Speakers Outside

Where you put outdoor speakers has a big effect on performance. The tests I conducted showed that wall-mounting a pair of speakers about 10 feet apart and 6 feet from the ground provides decent lateral coverage for a relatively large area. While mounting a pair of speakers out in the open can provide surprisingly clean reproduction, it can also produce dead spots—which might be a welcome thing at parties.

Soffit-mounting is the option most people find appealing because it puts the speakers up and out of the way and shields them from direct rain and sunlight. But from a sonic standpoint, it has its problems. Sound reflected from the overhang can create strong interference patterns. And the closer the speaker is to a corner, the more interference.

In my backyard, the combination of reflections off the soffit and the nearby wall produced response errors on the order of ±15 dB. The result: Singers often sounded like they had colds, and saxophones and trumpets sounded squeaky.

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B.I.C. America Adatto

By far the cutest—and least expensive—speaker of the test lot. B.I.C. America's Adatto is a "weather-resistant" model that combines a 4½-inch woofer and a 1-inch tweeter in an ABS plastic enclosure with a printed steel grille, spring-clip speaker-wire connectors, and four well-placed nail hooks. Right up front, the company recommends bringing the speaker inside during temperature extremes and avoiding direct exposure to water. The knuckle-rap test produced a slightly hollow sound with no ringing.

In my listening room, the Adatto exhibited the kind of upward-titled response curve that's common among small-woofer/small-cabinet speakers. Off-axis response was excellent, suggesting that the Adatto could be pressed into duty as a surround speaker. Sensitivity was 88 dB, and impedance hit a low point of 4.4 ohms.

Outside, since no mounting bracket was involved, I simply hung the Adattos from a couple of screws in my wall. No fuss, no muss—just be sure to take these babies down when the high winds kick up.

From the soffit position, the Adatto played down to 65 Hz or so—surprising for such a small speaker—but it was a real boomer. Midwall placement got rid of most of the boom, however. In the higher frequency range, horns sounded squeaky and vocal colorations were evident.

B.I.C. America Adatto

Enclosure Construction/Type: ABS plastic composite with painted steel grilles—vented
Mounting Hardware: integral nail hooks
Driver Complement: magnetically shielded 5½-inch woofer with rubber surround, 1-inch polyester-dome tweeter
Specifications: bandwidth, 70 Hz to 20 kHz; sensitivity, 88 dB; impedance, 8 ohms; recommended input power, 5 to 50 watts
Dimensions: 9 x 6¼ x 6 inches (H x W x D)
Weight: 4½ pounds
Warranty: 1 year
Price: $159 a pair

STEREO REVIEW JULY 1995
TO BUILD THE WORLD’S BEST SUBWOOFERS, WE WENT BIPOLAR. AGAIN.

At Mirage, we’ve proven the sonic superiority of Bipolar loudspeaker design. Now we’re proving it once again with our powerful new line of Bipolar subwoofers.

From the compact 100-watt BPS-100 to the flagship 250-watt BPSS-210, all four feature dual bass drivers in a unique Bipolar configuration. This eliminates transfer of low frequency energy to the floor, a major source of coloration in single driver subwoofers.

All feature our new “Auto-On” circuitry. And, for the ultimate in outboard control convenience, combine any of them with one of our LFX-Series of external crossovers.

From the original Bipolar explorers comes the world’s first complete line of Bipolar subwoofers, the ideal means of adding dramatic new depth to both audio and home theater systems. Track one down and explore the possibilities yourself.
Choosing a CD Player

HOW TO SELECT THE IDEAL PARTNER

By Edward J. Foster

Selecting any piece of audio electronics is a personal affair, but I suspect that it is more personal when choosing a CD player than when choosing other components. (I'm purposely excluding loudspeakers from the argument, even though choosing one is unquestionably subjective, because speakers are not strictly "electronic" devices.) The problem with finding the right CD player is that there are few hard facts to work with. When you're shopping for an amplifier, you can focus on the numbers — rated power, distortion, noise, and so on — but CD specifications are so similar that they seldom serve as the basis for selection.

Today, CD players are bought largely because of what they do for you — that is, on their lineup of features — rather than on how good they sound because, by and large, they all sound pretty good. This consistency of performance stems mainly from the development of relatively low-cost digital-to-analog (D/A) converters capable of the sort of linearity and dynamic range that once required careful tweaking during manufacture to achieve.

That's not to say that there are no quality differences among CD players or that a $99 toy will sound as good as an esoteric player going for ten times as much. But the sonic differences in the middle ground — the region that most of us mine — are subtle, to say the least. In this area, selection usually becomes nine parts features to one part specs. So, what do you look for when selecting the ideal CD partner?

First, examine your lifestyle. Are you the kind of person who plays discs from beginning to end and selects each one individually as the spirit moves you? If so, a changer could be more of a hassle than a blessing; single-disc players are faster and easier to load and unload than changers and are usually a darned sight quieter in operation. But if you're the organized type who chooses a full evening of music the moment you return from work, a multidisc CD changer is the obvious choice.

You can put away any concern that a CD changer requires settling for inferior sound. Sure, any particular changer may or may not match the sound quality of a topnotch single-disc player, but there's no technical reason why it couldn't... or shouldn't. Once a changer loads a disc into playing position, it operates no differently from the typical single-
Choosing a CD Player

disc system. And if you take comfort in numbers, you'll be happy to know that in this country changers outsell single-disc players by a substantial margin. You'll be in good company if you choose one! So the question now becomes, which type of changer makes the best mate for your lifestyle? There are four candidates to choose from. In order of historical debut, they are: the magazine or cartridge changer, the carousel, the "stocking" changer, and the consumer "jukebox."

**Magazine Options**

Pioneer introduced the six-disc magazine changer many years ago, and it remains the most popular for automotive use. If you have one in your car, you may want to stick with the format at home simply for the convenience of swapping magazines between car and living room. Of course, the two will have to use compatible magazines; some accommodate six discs, some ten.

Changer magazines make it easy to categorize music by "type" — country music in one, for example, hard rock in another, background in a third, and so on. You can leave the discs in the magazine and pop the one that suits your mood into the changer. That makes for fast and easy loading... once the discs are in the magazine.

Therein lies one of the negatives of the magazine format: Loading and unloading CD's is a bit of a hassle. If you're not the type to organize your music collection and keep the discs loaded, there's little point in choosing this kind of changer. If you do keep the discs loaded, you'll need a spare magazine for every half dozen discs in your "active" collection, and that can add a buck or two a disc in costs.

Magazine changer mechanisms usually take longer to swap discs than a carousel or "stocking" mechanism, although they're certainly faster than a single-play machine. That brings up a second consideration regarding this type of changer. With many magazine changers, playing a single disc is a nuisance; you have to find an empty magazine (or at least an empty slot in one) and load the disc before you can play it — not exactly instant gratification!

If you're the impatient type, check out a "6+1" changer from JVC or Kenwood. These have a single-disc tray as well as a six-disc magazine, so you get the best of both worlds. Although you're generally limited to six or ten discs per magazine, Pioneer has players that handle two (PD-DM802) or three (PD-TM3) six-disc magazines at once — great for parties.

Some magazine changers feature multimagazine memory. Once you've "told" the player which discs are in a particular magazine — and even which tracks of which discs are your favorites — it recognizes that magazine whenever it's loaded and recalls your programming preferences. Of course, the player has no way of knowing if you've changed discs in a magazine, so the system works best for those with a stable lifestyle.

**Calling All Carousels**

If organization isn't your forte, you may be happier with a carousel changer. Judging by the numbers, Americans aren't all that organized, because carousels are the most popular type of CD changer in this country. You'll find a wide selection of carousels that handle five discs (in some cases six) at a time. The CD's are placed in wells on a rotating platform, or "carousel," which spins about to load the one you want. A few carousels load from the top, but the disc tray on most of these changers slides out of the front panel.

Kenwood's DP-M5570 "6+1" changer ($230) has a six-disc cartridge and a single-play drawer for on-the-fly operation. It features dual 1-bit D/A converters and a twenty-track program memory.

Onkyo's DX-C320 carousel changer ($330) has a platter that accepts six discs. You can change three discs without interrupting playback and store a forty-track playback sequence in memory.

Fisher's DAC-2403 Studio 24 changer ($300) uses a vertical carousel that holds twenty-four CD's. The company recently introduced a sixty-disc version of the changer called the Studio 60 (not shown, $500).
It's duck soup to place discs into a top loader, and the disc-clamping mechanism in this type of player can be designed to hold the disc more securely than the mechanism found in many drawer-type front loaders. Aficionados of top-loading carousels take that loading characteristic as a sign of quality. The problem is, you can't stack other system components on top of these changers, which may preclude using them in your setup.

Front-loading carousels are undoubtedly the most popular CD players on the market. Carousels swap discs faster and more quietly than most magazine changers, and some permit you to load and unload all but one of the discs while playing the lone survivor. One-disc-at-a-time listening is almost as convenient as with a single-disc player, and, although carousels don't categorize discs in groups the way magazine players do, some (for example, the Sony CDP-C745) let you indicate your track preferences for a number of discs and store them in memory. When the tables of contents of these discs are next read, the mechanism "knows" your favorite selections.

A few years ago, Nakamichi introduced its first MusicBank changer, which used what the company calls a "stocking" mechanism (no, you don't wear it; you "stock" CD's in it). MusicBank sort of bridges the gap between magazine changers, carousels, and single-disc players. Discs load as they do in a single-disc system — you place them on a tray, one at a time. The mechanism then swallows the discs and stores them inside on a mechanical elevator that is functionally equivalent to a nonremovable magazine. The elevator holds up to six discs while a seventh is on the tray. That gives a MusicBank changer the playing time of a 6+1 magazine changer without your having to buy any magazines. Nakamichi's mechanism (which is also used in McIntosh's MCD7008) is faster and quieter than conventional magazines and loads more easily, too, though not as easily as a carousel.

**Jukebox at Home**

If controlling five, six, or seven discs at a time doesn't imbue you with a sense of power, if not even Pioneer's three-magazine changer can tame your appetite, you're a candidate for the CD jukebox — the true megachanger. Think of it! Fifty, a hundred, two hundred, three hundred discs at your beck and call! Mind-boggling, isn't it? Compared with such systems, Fisher's twenty-four-disc DAC-2403, or Studio 24, seems puny ... until you check out the equally puny price (less than $300). Fisher also recently introduced the sixty-disc DAC-6015 Studio 60, which lists for $499.

If there's a trend in this relatively new area, it seems to be toward a consolidation at a 100-disc capacity, although Pioneer's PD-F51 is a 50-disc player (actually, it holds fifty-one discs), Denon offers a 200-disc system, dubbed the DN-1200F/C, and C4 (Custom Computing of Carson City) has a 300-disc monster, the No-Touch 300. Once you go beyond a hundred discs, prices rise dramatically, into the $4,000 to $5,000 range. You can even pay a lot for a 100-disc changer — NSM's Model 3101 lists at over $4,000, while Proceed's CD Library tops five figures! In the more reasonable $1,000-or-less range, 100-disc players are available from several companies. Pioneer offers the $565 PD-F904 and the $740 PD-F1004, which features an on-screen graphical interface. Kenwood has the $450 DP-J1070 and the $650 DP-J2070, which can be connected to a computer to streamline entering disc information. Sony has the $700 CDP-CX151 and the $1,000 CDP-CX100 and plans to introduce the $600 CDP-CX153 this September. And 101-disc systems are available from Aiwa, the $650 DX-C100M, and JVC, the $1,000 XL-MC300.

With some of these systems, you can daisy-chain multiple.

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*In addition to holding your fifty favorite CD's in two "rolling racks" behind its front panel, the Pioneer PD-F51 changer ($615) can play other CD's through its single-disc slot.*

*Meridian's elegant Model 506 player ($1,495) uses a nonmagnetic disc-clamping mechanism to minimize vibration and has both optical and coaxial digital outputs. A Meridian System Remote is included.*

*Besides a six-disc magazine and a single-disc tray, JVC's XL-GM800TN changer ($850) boasts a graphics decoder and such karaoke features as a vocal-replacement mode, a key shifter, and mike inputs.*

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Changers together and increase capacity further. And even a 100-disc system will handle all the CD's in many people's music collections, so think of all the storage space you could save. Jukeboxes are great for custom installations, where they can flood every room of your home with music that you can select from a huge library. Some are easier to program and operate than others; the same holds true for disc loading. When making an investment of this magnitude, it's obviously wise to comb the turf thoroughly.

Many CD player features are so nearly ubiquitous that you can take them for granted: the ability to program the system to play specific selections on a disc or discs in the order you want to hear them; random playback of all the pieces on a disc, in a magazine, or on a carousel (or of only those you've committed to the player's memory); wireless remote controls that put everything at your fingertips. Others, like synchronized copying to a tape deck, are common but by no means universal and usually require "compatible" components (that means, "made by the same folks"). If you regularly tape from CD's, you may wish to look into CD players that offer a Peak Search function. Peak Search locates the highest signal level on the disc and helps you set the recording level to accommodate it. Intro Scan, another common feature, plays the first few seconds of each selection and can be useful if you don't know the name of the song you want but you can recognize the tune.

Some players have digital outputs — via either fiber-optic or coaxial cable — which are necessary only if you want to use an external D/A converter or plan to make digital dubs to DAT, DCC, or MD. And then there are those players that let you assign names to your CD's, which then appear in the display during playback — a dubious feature in my book. A good salesperson can help guide you through the thicket, but only you can decide what you really want from your CD partner.

THE LASERDISC CONNECTION

If you've been bitten by the home-theater bug, there's another possibility you should investigate: the "combi-player." Combi-players have a large platter that handles both CD's and laserdiscs. That makes a lot of sense since both types of disc are optical and are read by a laser pickup. There are a number of combi-players on the market from a number of companies including Denon, Kenwood, Marantz, Panasonic, Pioneer, and Yamaha. My list is not all-inclusive by any means; even some of the more esoteric companies are now making combi-players.

Yamaha's CDV-870 laserdisc/CD combi-player ($749) features a proprietary S-Bit Plus 1-bit digital-to-analog conversion system, an on-screen menu system, and ten forward and reverse speeds. Some combi-players automatically switch from Side A to Side B on laserdiscs, which is great for couch-potato videophiles. With others, you have to get up and flip the disc manually. Most systems can play only one CD at a time; others are the functional equivalent of a five-disc carousel. Soundwise, there's no reason a combi-player can't be equivalent to a standard CD player, but some are noticeably slower to respond to commands and can be less convenient to use in terms of programming and track selection.

E.J.F.
Certain species exhibit an uncanny ability to survive – to thrive – despite the rigorous forces of nature. Fortunately, possession of such abilities is not limited to arthropods. Witness the Garden Speaker series by Pioneer, and the innovative sound and environmental qualities of the CSL-50E and CSL-70E. Full-range and two-way speakers respectively, the CSL-50E/CSL-70E represent crystal-clear sound in an impenetrable package. Weatherproof, bulletproof LEXAN® cabinets (both water and air tight), stainless steel grills; gold-plated binding posts; and graphite-reinforced polypropylene drivers create the perfect speaker for outdoor audio. And an exclusive, versatile mounting bracket and five-year warranty make acquiring perfection even easier (mounting bracket and hardware are included).

The CSL-50E and CSL-70E – by design, not evolution – they thrive in any outdoor environment.

CIRCLE NO. 33 ON READER SERVICE CARD
The millennium approaches and civilization seems to be crumbling about our ears, but for people who like to collect movies this is a genuine Golden Age. The reason? Home video, of course.

It's never been easier to collect movies at affordable prices. Facing apparently insatiable consumer demand, the major studios are emptying their vaults of older films at a pace that would have seemed astonishing ten years ago. And even the biggest of recent blockbusters now routinely have their prices slashed within weeks of their initial appearance in video stores. For movie fans with VCR's or laserdisc players, or, even better, surround-sound home theaters that put you in the middle of the action (subwoofers rule!), these are heady times indeed.

But Sturgeon's Law — that 90 percent of everything is crap — manifestly applies as much to movies on video as to anything else. So what's worth collecting, as opposed to renting once and forgetting? The following suggestions, in no particular order, should provide a good place to start — flicks famous and not so famous, both recent and (occasionally) not so recent, available on tape and (often) laserdisc — because all of them richly repay repeated viewing.

DEAD Ringers
Jeremy Irons is astonishing as twin gynecologists on a slow downward spiral into madness in horror specialist David Cronenberg's most accomplished work to date. Watch it once for the acting and then again to marvel at the trick photography. [Media]

A FISH CALLED WANDA
Small-time thieves (Kevin Kline, Jamie Lee Curtis) fall out over a jewel heist, then get involved with a befuddled English barrister (John Cleese). Result: the funniest film of the Eighties. [MGM/UA, tape and disc]

HEATHERS
Nice girl Winona Ryder falls for homicidal Christian Slater in this wicked satire of contemporary teen mores. With a pre-Beverly Hills 90210 Shannen Doherty in the role she was born to play — Homecoming Queen from Hell. [New World tape, Image disc]

THE PLAYER
A murder mystery, a black comedy, and a poison-pen letter to Hollywood. director Robert Altman's brilliant comeback film has a script that approaches the cleverness of Citizen Kane and more delicious celebrity cameos than you can shake a stick at. [New Line, tape and disc]

TOP SECRET!
Newest Batman Val Kilmer plays (brilliantly) a Sixties teen idol in this who’d-have-thunk-it parodistic cross between a cold war thriller and an Elvis musical from the folks behind Airplane, Hot Shots, and the Naked Gun movies. Hilarious. [Paramount, tape and disc]

MIRACLE MILE
A young trombone player gets the ultimate payphone wrong number — an Army missile silo operator calling with a 60-minute warning of nuclear apocalypse. Haunting, funny, and weirdly moving, courtesy of writer/director Steve DeJarnatt. The most regrettably overlooked film of the Eighties. [HBO]

THE FRESHMAN
Matthew Broderick, as an NYU film student, meets Marlon Brando (doing a great sendup of himself as The Godfather) in this enchanting farce from writer/director Andrew Bergman. Sublime moment: Bert Parks singing the Miss America song to a komodo dragon. [Columbia/TriStar, tape and disc]

THE REF
A crook on the lam (comedian Denis Leary in a sensational star turn) makes hostages out of a seriously dysfunctional yuppie couple — or is it the other way around? One of the handful of first-rank Nineties comedies so far, and co-star Judy Davis seems to have inherited Blair Brown’s role as the Thinking Person’s Sex Symbol. [Touchstone, tape and disc]

ROBOCOP
The most original special-effects extravaganza of the last decade, director Paul Verhoeven’s half-man/half-machine movie is also (no kidding) a
Woody and Mia in Shadows and Fog

pointed critique of capitalism run amok. Sensitive conservatives, of course, can just ignore all that and groove on the titular hero (Peter Weller) blowing away the bad guys. [Orion tape, Image disc]

DARKMAN
A pre-Schindler Liam Neeson is a masked avenger in director Sam Raimi's endlessly inventive live-action comic book. It's everything the Batman movies should've been, but weren't. [MCA, tape and disc]

HELP!
The Beatles' second film jettisoned the pseudo-documentary approach of A Hard Day's Night for a riotous comic surrealism worthy of the Marx Brothers. And the musical sequences are still better than anything MTV has ever aired. [MPI tape, Criterion disc]

GIMME SHELTER
This 1969 documentary look at a Rolling Stones tour that went horribly wrong is more than just a cool concert film with great sound. In fact, it's closer to a rock-and-roll Greek tragedy with art direction by Hieronymous Bosch. (ABKCO, tape and disc)

THIS IS SPINAL TAP
Rob (Meathead) Reiner's mock documentary on the decline and rise of a clueless English heavy-metal band remains one of the sharpest insider parodies ever made. Plus, you can play Spot the Celebrity Guests for what seems like forever. [Columbia/TriStar tape, Criterion disc]

GOODFELLAS
A life in the mob, courtesy of director Martin Scorsese, with amazing ensemble acting — by Robert DeNiro, Joe Pesci, Ray Liotta, Paul Sorvino, and a host of others — plus visual sequences that will take your breath away. [Warner Bros., tape and disc]

SCHINDLER'S LIST
A wrenchingly powerful film on a daunting subject (the Holocaust) by a filmmaker (Steven Spielberg) nobody had previously pegged as anything more than a gifted showman. On some level I still can't believe he brought it off, but there's not a minute of it that isn't superlative. [MCA, tape and disc]

SHADOWS AND FOG
Woody Allen, as a quintessential Little Guy, on the run from nameless figures of oppression in a beautifully photographed soundstage evocation of Eastern Europe in the Twenties. Think Kafka with better jokes — much, much better jokes, like a cameo by Madonna. [Orion tape, Image disc]

ED WOOD
Tim Burton's celebration of everybody's favorite cross-dressing Z-movie director is among other things, a sweetly funny ode to total artistic failure. Martin Landau, as the dying Bela Lugosi, is so good he should have gotten his supporting-actor Oscar at the wrap party. [Touchstone, tape and disc]

PLAN 9 FROM OUTER SPACE
And while we're on the subject, here's the real Ed Wood's masterpiece(?)! Clearly, the greatest flying-saucers-on-strings movie of all time. [Rhino tape, Lumivision disc]

RAGING BULL
Still the pinnacle of DeNiro and Scorsese's ongoing collaboration, this riveting bio-pic on the weird, savage life of fighter Jake LaMotta isn't just the best boxing movie ever made — it's one of the best American movies period. [MGM/UA, tape and disc]

RED ROCK WEST
Unemployed schmo Nicholas Cage drifts into a desert town and gets mistaken for a hitman in director John Dahl's elegant homage to film noir. Dennis Hopper, as the real killer, adds yet another portrayal to his extensive gallery of memorable screen psychos. [Columbia/TriStar, tape and disc]

and a few classics to consider . . .

ALEXANDER NEVSKY.
Restored version of the Eisenstein/Prokofiev landmark. [BMG, tape and disc]

BEAUTY AND THE BEAST.
Jean Cocteau's surrealist fairy tale. [Homevision tape, Criterion disc]

THE BRIDGE ON THE RIVER KWAI.
David Lean's World War II epic. [Columbia/TriStar, tape and disc]

CHILDREN OF PARADISE.
The French Gone With the Wind. [Homevision tape, Criterion disc]

CITIZEN KANE.
Orson Welles, and enough said. [Turner tape, Criterion disc]

THE GODFATHER SAGA.
An American family. [Paramount]

NAPOLEON.
Abel Gance's silent masterpiece. [MCA, tape and disc]

STAGECOACH.
John Ford's Old West, never better. [Warner Bros., tape and disc]

YOJIMBO.
Akira Kurosawa's Samurai western. [Homevision tape, Criterion disc]
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CIRCLE NO. 25 ON READER SERVICE CARD
The Tokyo Quartet Plays Debussy And Ravel

The Tokyo String Quartet recorded the Debussy and Ravel quartets in the late 1970’s for CBS, and in 1983 the foursome, by then with the American Peter Oundjian as first violin, participated in an Angel recording of Ravel’s Introduction and Allegro. All three of those works are included in the quartet’s superbly played and beautifully recorded new RCA Victor CD.

The Debussy performance is a revelation. The Tokyo players give us the requisite refinement and color, but they add a muscularity and forthright rhythmic impetus that send a welcome gust of fresh air through the proceedings. The opening bears out Debussy’s très décidé (“very decisive”) indication for the first movement, telling us that we are in for a real listening experience. The following assez viv (“pretty lively”) movement is delightfully prickly, and the slow movement is both poignant and dramatic, reaching its peak at the quasi-recitative for viola. There is passionate urgency in the finale, the très modéré (“very moderate”) marking notwithstanding.

Ravel’s feline aspect is brought to the fore in the opening movement of his quartet. It all feels like velvet, even in the spiky second movement and certainly throughout the slow movement, until the cello recitative breaks in and paves the way for a gorgeously fierce finale.

While the two quartets were recorded at Princeton University in 1992 and 1994, the Ravel Introduction and Allegro goes all the way back to a 1988 New York studio taping. The work is a display piece for the pedal harp, and harpist Heidi Lehwalder is front and center here, with superstars James Galway (flute) and Richard Stoltzman (clarinet) as her woodwind collaborators. The result is sonically ravishing — crystal clear in texture without ever sounding brittle. For me this CD is unalloyed pleasure from start to finish.

David Hall

DEBUSSY: String Quartet
RAVEL: String Quartet; Introduction and Allegro
Lehwalder, Galway, Stoltzman, Tokyo String Quartet
RCA VICTOR 62552 (65 min)

Elvis Costello, Cover Boy

Leave it to Elvis Costello to do the cover album thing the right way. Usually, when a pop star resorts to an album of hand-picked favorites it signals a soft spot in the artist’s career, and the songs are unfailingly obvious and familiar (thereby minimizing the risk of a flop).

Costello’s just-released “Kojak Variety” is different. For one thing, he’s so prolific that the album sat on the shelf for five years, waiting for a brief break in his creative output. He didn’t choose a bunch of easy marks, either. The best-known song here, from a rock fan’s perspective — well, it’s a tossup between I Threw It All Away, a track from Bob Dylan’s countrified “Nashville Skyline” album, and Days, a Kinks single from their glorious, pastoral British period (the best-known song, period, is probably Ray Noble’s pop standard The Very Thought of You). From there, though, “Kojak Variety” gets really obscure.

But Costello’s not just being perversely anticommercial; he’s simply picked songs that mean something to him. His choices amplify his recurring obsessions: the mutual hurt in the unending war between the sexes, a supplicant’s need for reassurance that a lover won’t leave or betray him, the overriding sense that love is a pitched battle that makes losers of us all. Actual-
ly, the vintage relics he’s chosen could pass for lost outtakes from “This Year’s Model” based on their titles alone: Pouring Water on a Drowning Man, Running Out of Fools, and Must You Throw Dirt on My Face, a Louvin Brothers country song that he turns into a Memphis-style soul ballad by drawing out the inherent pain beneath the surface.

Another aspect of “Kojak Variety” that’s consonant with the Costello persona is its sheer, hard-charging sense of edge-driven fun. Costello loves old blues-spined rockers like Little Willie John’s Leave My Kitten Alone (recorded but never released by the Beatles, except on bootlegs) and Little Richard’s Bama Lama Bama Loo, and he approaches them here in a style reminiscent of the old Who coinage, “maximum R&B.” Hidden Charms, a Willie Dixon number recorded by Howlin’ Wolf, is taken at a shuffle tempo, with cheesy underwater organ effects enlivening the sense of some smooth-talking hepcat paying homage to his main squeeze.

The album opens with a suitably perverse choice, Strange, an obscurity by R&B madman Screamin’ Jay Hawkins. Costello leaves in the take’s false start (now, is that any way to begin an album?), which serves as a tip to the barnstorming fun and games that await the intrepid listener. Another strong, offbeat selection is Fifties hipster Mose Allison’s Everybody’s Crying Mercy, whose blanket putdown mirrors Costello’s own dry, curmudgeonly world view.

Rockers have been doing records like this one since Bryan Ferry’s “These Foolish Things” in 1974; in fact, these days they’re glutting the market. But “Kojak Variety” is something special: oxymoronic as it sounds, it’s the most original album of covers ever made.

Parke Puterbaugh

ELVIS COSTELLO
Kojak Variety
Strange; Hidden Charms; Remove This Doubt; I Threw It All Away; Leave My Kitten Alone; I’ve Been Wrong Before; Everybody’s Crying Mercy; Bama Lama Bama Loo; Must You Throw Dirt on My Face; Pouring Water on a Drowning Man; The Very Thought of You; Running Out of Fools; Payday; Please Stay; Days
WARNER BROS. 45903 (54 min)

Rattle’s Subtle Liszt

Simon Rattle — now Sir Simon to you, fella — has always been something of an enigma to me. For years the British press praised him as the greatest thing to happen to the symphony orchestra since the invention of the valve trumpet, and I would play his recordings and find my attention flagging after 5 minutes. But with his new dream recording of Liszt’s A Faust Symphony, I finally get it. In his debut recording with the Berlin Philharmonic, Rattle elicits the notoriously temperamental band’s best playing on disc since the death of Herbert von Karajan.

The Fantantics found the Faust legend irresistible, and it inspired Liszt, archest of arch-Romantics, to write his orchestral masterpiece; Bartok ranked A Faust Symphony “among the outstanding musical creations of the nineteenth century.” It is quite unusual, if not unique, for a programmatic work, in that it does not try to convey the story of Goethe’s drama in musical language but rather evokes the personalities of the three protagonists: Faust in tense, complex, turbulent lines, Gretchen with aching tenderness, and Mephistopheles in a scherzo marked allegro vivace, ironico.

Dynamically, this is about as subtle and nuanced a performance as one could hope for. The brass has never bloomed more thrillingly, and the strings maintain an ideal inner clarity even at the most agitat-
ed moments, yet there is a judicious sense of balance throughout. This is a piece that all too easily slips into bombast, and it is a measure of Rattle’s brilliant musicianship that the delicate passages for solo winds and strings in Gretchen’s movement are just as exciting as the Phythianephelean sound and fury. The live recording, made in the Berlin Philharmonic last year, has breathtaking immediacy and beguiling warmth. Jamie James

LISZT:
A Faust Symphony
Seifert: Berlin Philharmonic. Rattle cond. EMI 55220 (69 min)

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POPPULAR

• BILL HALEY & HIS COMETS: Rock the Joint! The Original Essex Recordings 1951-1954. SCHOOLKIDS 1529. Long-out-of-print singles predating Haley’s move to Decca and his Rock Around the Clock success.

• GEORGE JONES: Sings the Hits of His Country Cousins. RAZOR & TIE 2064. The great country singer’s 1962 covers album, featuring Peace in the Valley.

• JIM MORRISON/THE DOORS: An American Prayer. ELEKTRA 61812. From 1978, a posthumous poetry and music collaboration now fleshed out with three bonus tracks, including new music by the surviving Doors.

• THE REIVERS (Original Motion-Picture Soundtrack). COLUMBIA/LEGACY. From the 1970 Steve McQueen film, the score that garnered John Williams his first Academy Award nomination.

CLASSICAL

• BERLIOZ: Symphonie Fantastique; Les Nuits d’Été; La Mort de Cléopâtre; Roman Carnival Overture; other works. Soloists: London Symphony, BBC Symphony. New York Philharmonic, Boulez. SONY SM3K 64103 (three CD’s). Recordings conducted by Pierre Boulez from 1968 to 1977.


• MAHLER: Symphony No. 9. Columbia Symphony Orchestra, Walter. SONY SM2K 64452 (two CD’s). Part of Sony’s Bruno Walter Edition, this set includes a “talking portrait” of the conductor and a “working portrait” drawn from his rehearsals for this 1956 recording of the monumental Mahler Ninth.

Linda Ronstadt Comes Home

ever since the early Seventies, Linda Ronstadt has been one of popular music’s most versatile singers, distinguishing herself first as a compelling interpreter of the singer-songwriter period and going on to record albums of rock and soul, country and folk, adult contemporary, classic pop standards, mariachi music, and even opera. Yet her biggest influence is as a big-voiced California country rocker, and in the Nineties a number of country females, including Trisha Yearwood and Martina McBride, have cited Ronstadt as an inspiration for both her emotional depth and her tonal purity.

With her new album, “Feels Like Home,” Ronstadt returns to the country-accented folk and rock she premiered in 1974 with “Heart Like a Wheel.” Her exceptional soprano has deepened and taken on additional colors since then, and her phrasing has gotten more adventurous. Producer George Massenburg goes a tad over the line here with a gauzy, over-orchestrated version of Neil Young’s After the Gold Rush, where Ronstadt is joined in trio vocals by Emmylou Harris and Valerie Carter, but on the whole “Feels Like Home” is her best album in many years.

The biggest surprise of the record is a mandolin/bluegrassy treatment of Tom Petty’s The Waiting. Sung full-tilt, as opposed to Petty’s more subtle reading of the lyrics, the song seems less a quiet declaration of joy and release than a shout-to-the-world exaltation. While “Feels Like Home,” titled after Randy Newman’s hymn of thanks for a loving relationship, is a bit too reserved and low-key in its choice of material (the closest Ronstadt comes to a cut-loose, rock-out rave-up is on Marraca Berg’s Walk On), it’s an inordinately pretty record, from Ronstadt, Harris, and Claire Lynch’s magnificent harmony vocals on the A.P. Carter country-folk offering Lover’s Return to the poetry of David Olney’s Women ‘Cross the River to the ongoing sense of loss on The Blue Train, previously recorded in a less pristine, more aching version by Maura O’Connell. Guest instrumental performances by fiddler Alison Krauss, mandolinist David Grisman, and slide guitarist Roy Rogers add yet another level of superior musicianship.

Aside from merely making good music, though, Ronstadt has done something else with this album — she’s taken herself out of the “inspiration” class and made herself a contender again. Welcome back, songbird.

LINDA RONSTADT
Feels Like Home
The Waiting; Walk On; High Sierra; After the Gold Rush; The Blue Train; Feels Like Home; Teardrops Will Fall; Morning Blues; Women ‘Cross the River; Lover’s Return ELEKTRA 61703 (40 min)
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The late Frank Zappa wore many hats during his career — composer, band-leader, satirist, guitarist, anticensorship crusader — but he won my heart in particular for perhaps the greatest album title of all time, "Weasels Ripped My Flesh." So I am gratified to report that virtually all of Zappa's recorded output (nearly sixty albums, including "Weasels" from 1970) has just arrived on CD, courtesy of Rykodisc. All were remastered by Zappa himself before his untimely death in 1993, and most feature revamped artwork by the original designer, Cal Schenkel. Pick hit: "We're Only In It for the Money," in a cleaned-up version of the original 1968 mix (the first CD reissue featured updated rhythm tracks that most fans disliked). S.S.

TERRY ANDERSON
You Don't Like Me

Terry Anderson wrote Battleship Chains for the Georgia Satellites and later co-wrote most of Satellite frontman Dan Baird's superb 1993 solo album. His own solo début is very much in the same vein — gutsy, lyrically amusing Stones-ish guitar rock, not at all profound but an absolute delight nonetheless. Recorded more or less as a one-man show in the artist's low-tech home studio. "You Don't Like Me" reveals Anderson can do a mean imitation of Mick Jagger and Keith Richards (often in the same song, as in the addictive Weather or Not), and there's nary a track here where the roar of overdubbed guitars is less than impressive. Basically, it's "Exile on Main Street," without the angst, and one of the best records I've heard this year. S.S.

JANN ARDEN
Living Under June

Thirty-two-year-old Canadian Jann Arden's second album, "Living Under June," has already reached double-Platinum status and won three Juno awards at home, and with good reason. Arden, a singer-songwriter with a strong pop sensibility, crafts smart, provocative songs about complex human relationships and sings them in a wise, knowing soprano that suggests a less histri-onic Ann Wilson or a more grounded Julia Fordham. Whether writing turbulent songs of romantic love (Looking for It [Finding Heaven], Could I Be Your Girl), addressing the rigors of apartment living (the title song), Arden is usually nothing short of ex quisite. She makes up for her one misstep — a duet with the lachrymose Jackson Browne on Unloved, a song only the writer should sing — with the extraordinary It Looks Like Rain, a retro-torch song to burn a hole in the sky. A.N.

ALEX CHILTON
A Man Called Destruction

Semioticians, deconstructionists, obfuscators, and other make-work specialists of the rock-critic trade will either pooh-pooh "A Man Called Destruction" as trivial entertainment or fail all over themselves trying to explain what Alex Chilton is really signifying with the message-free rhythm 'n rock he's now purveying. Those folk would save themselves a lot of worry lines if they'd just put on the record and have some fun for a change. Because the implicit message of this album is simply, that message music sucks — that several decades of progressive rock and politically correct roll have produced an indulgent school of pretension that's derailed rock from its gloriously anarchic origins.

Somewhere outside this circus stands Alex Chilton, playing his guitar and singing in time-tested Southern fashion. He's back on the Ardent label, scene of his youthful triumphs and tragedies with Big Star, and this is his strongest solo work to date. He's into the New Orleans R&B groove thing more than ever, and the six Chilton originals here offer solid proof of creative renewal. The three songs that close the album flat-out groove: You're Lookin' Good, Don't Stop, Chilton's best straightforward rocker since, well, ever. Strewn amid all that is an eclectic batch of covers ranging from boss R&B by the likes of Chris Kenner and Jimmy Reed to more eccentric fare like the falsetto-filled Jan and Dean hit New Girl in School and, best of all, a hilarious Italian beat-music tune of early-Sixties vintage about what it means to be a rebel (It Rebello). In short, the entire album is danceable (in an old-school style), loose, funny, and alive. Get it while it's hot. And the hell with P. J. Harvey. P.P.

GEORGE DUCAS
Liberty 28329 (36 min)

Boy, how things have changed in Nashville! Used to be, if you had any higher learnin', you kept it to yourself, lest somebody think you'd gotten above your raisin'. But these days George Ducas, one of Music City's

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more noteworthy young hat acts, lays it out plain in his bio: "BA in Economics, Vanderbilt University."

Don't hold that against him, even if you've already figured he doesn't look quite at home in that cowboy hat. Texas born and California cured, Ducas has a knack for writing good, clear lyrics (none of that cheezy word-play stuff) and music that authentically harks back to Bakersfield and 'kicker Texas towns in the Fifties and Sixties. On his latest album Ducas marries his self-possessed vocals with ten cross-genre-ational songs he co-wrote with Nashville tunesmiths. At their best they evoke the retro-rock and honky-tonk of contemporary hillbilly Dwight Yoakam (Kisses Don't Lie, It Ain't Me) and suggest what Buck Owens, Roy Orbison, and Ernest Tubb might have sounded like performing in the Nineties.

With the help of producer Richard Bennett (Steve Earle, Emmylou Harris), Ducas forges a hip guitar-and-pedal-steel-washed California shuffle sound, switching into dance-hall (not line-dance) mode for Tear-drops and paying homage to classic weepers on My World Stopped Turning. There's a touch of attitude here, to be sure. But hey, where would Yoakam (skinny legs and all) be without it? Ducas is one newcomer worth watching. A.N.

CLIVE GREGSON
People & Places
COMPASS 4227 (62 min)
Performance: Underwhelming
Recording: Fine

Clive Gregson used to front a terrific little pop-punk outfit (Any Trouble) that made two terrific albums on the lamented Stiff label. But since he was kind of geeky looking and wrote a lot of fairly petulant stuff about his lucklessness in love, he got typed as a junior Elvis Costello, and that stuff about his lucklessness in love, he got looking and wrote a lot of fairly petulant songs from the husband's point of view which I wanted to like more than I actually did. But the overall impression left by "People & Places" is just a sort of generic wistful melancholy. Wait for some New Wave obsessive to ressure those Any Trouble albums. S.S.

GUIDED BY VOICES
Alien Lanes
MATADOR 123 (41 min)
Performance: Great
Recording: Awful

The members of Guided by Voices have some of the best fake English accents in the history of rock-and-roll. Never mind that they're really from Dayton, Ohio, and fronted by a fortyish high-school teacher. Listening to the twenty-eight songs on "Alien Lanes" one can hear traces of the Move's reedy vocals and great guitar sound, 10cc's wise-ass attitude, the Soft Boys' punk-psychedelic fancies, the Kinks' jaded romanticism, and the Rutles' profundity.

But GBV albums really don't resemble anybody else's, and that's both a blessing and a curse. At their best they upend the idea of what a record ought to sound like. The songs are over when they're over, whether that's 2 minutes or 18 seconds, and they're spliced together so that the flow of melodic hooks never lets up. And the group's use of cheap recording equipment gives them a unique sonic personality that matches the cut-and-paste songwriting. Still, "Alien Lanes" sometimes carries things too far — GBV really didn't need to record one song while the garbage truck was going by, to dub scratchy-record noises on another, or to leave in all the obvious tape glitches. It may be time for them to sell out just a little and make a real record; Lord knows the songs are worth it. Brett Milano

THE HIGH LLAMAS
Gideon Gaye
DELMORE 007 (55 min)
Performance: Smile
Recording: Shimmering

Sean O'Hagan, formerly of the Irish band Microdisney, is the driving force behind the High Llamas. "Gideon Gaye" is a fanciful excursion into realms of late-Sixties pop at its most ambitious, when the sky was the limit and the musical imagination of a generation seemed boundless. O'Hagan — who sings and plays guitar, piano, organ, glockenspiel, and Moog synthesizer — unabashedly derives his principal inspiration from the Beach Boys' resident genius, Brian Wilson and his never-completed orchestral-pop masterwork "Smile." (Note: Capitol Records is slated to issue a boxed set of the "Smile" sessions; keep your fingers crossed, everybody.)

The album title is a pun on one of the song titles, Giddy and Gay. Those two words, "giddy" as in playful and "gay" in its original meaning, describe the ornate musical sand castles O'Hagan has constructed with the High Llamas. In some places, especially The Goat Strings, the group's inspiration comes almost too close to the original for comfort. But for most of its nearly hour-long length, "Gideon Gaye" is a near-perfect evocation of a pop nirvana that few have been able to reach. This is an album for the head (and headphones); put it on and let the music carry you off into a maze of enchantment. P.P.

CHRIS ISAAK
Forever Blue
REPRISE 45845 (40 min)
Performance: More variety
Recording: Good

Retro-rockabilly, Roy-Orbison-worshipping balladeer Chris Isaak returns from the relative failure of "San Francisco Days" with an album that keeps his trademark dreamy blue mood intact while veering somewhat out of the sameness that marred that last record. The songwriting in "Forever Blue" never really gets completely off the ground, but Isaak offers some badly needed tempo changes this time out, and David Lynch isn't ready to pop out of the opening strains of every cut. Change Your Mind may sound like the hallucinations of somebody going down in a heroin overdose, but Somebody Cryin', Believe, and Don't Leave Me pretty much play it straight. After that, it's an odd bag. The title song could have been recorded in the 1920's, and Goin' Nowhere, without the quasi-American Indian war dance, might have been a contender for either the Beatles or the Stones, which is a feat in itself. Odd factoid: Gracing Graduation Day is a delicate electric-guitar solo from one John Morgan, a nineteen-year-old Navy seaman Isaak heard noodling in a guitar shop and recorded on a weekend pass. Who says miracles never happen? A.N.
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What does Elton John have against rock-and-roll these days? More power to him for becoming one of the more likable adult/contemporary acts around, but recent pickings have been slim for those of us who always thought that The Bitch Is Back is a better song than Candle in the Wind. "Made in England" is something of a comeback for John, at least when compared with the smarmy Lion King soundtrack. The fact that most of the songs have one-word titles tips you off that this one's meant to be a big statement, and the tunes are indeed his strongest in a long while. Bernie Taupin's lyrics all relate to real life for a change, and Paul Buckmaster's string arrangements lend some welcome "Madman Across the Water" overtones. The twelve-string driven Please and diehard-pop number Pain both prove that Elton's not out of steam just yet, and the title track is a melodic strut that harks back to his Seventies heyday. On the other hand, songs like Cold, House, and Belfast are the kind of maudlin ballads that have clogged up too many of his recent albums. And the opening Believe comes across as an obvious attempt to write his own version of John Lennon's Imagine. It does work, but I Wanna Hold Your Hand is still a better song.

Koerner, Ray & Glover
Blues, Rags & Hollers
RED HOUSE 76 (52 min)
Performance: Remarkable
Recording: Vintage but excellent
Back in the early Sixties Koerner, Ray & Glover were the first white American kids to do authentic (or what was billed as authentic, anyway) folk blues. This album, originally released on a tiny audiophile label and then picked up by the fledgling Elektra in 1963, was a bona fide underground classic — for a while, a copy of it seemed to be in at least one dorm room at every college in America. For this reissue (it's been out of print for over twenty years) the original stereo master has been used for the first time (Elektra thought the separation was too wide), and songs originally cut for reasons of LP length have been restored. Back when this was new, I thought it was kind of dry and academic sounding, at least vis-à-vis the real thing. In retrospect, however, these guys not only knew what they were doing but also brought a great deal of their own personalities to a style of music they clearly loved a lot; you can hear the fun they're having, and it's infectious. An extremely welcome return.

Annie Lennox
Medusa
ARISTA 25717 (47 min)
Performance: Don't rush right out
Recording: Very good
On the follow-up to "Diva," ex-Eurythmics Annie Lennox's solo debut, the queen of the funny hair and clothes goes traditional, recording an entire album of covers, or, as she puts it, "a selection of songs I have been drawn to for all kinds of reasons." While this record isn't as techno-heavy as what Lennox did with the Eurythmics, it's closer to the sound she got with guitarist-keyboardist-producer Dave Stewart than the barrage of synths and drum machines that characterized "Diva."

Lennox takes some real chances on "Medusa," reprising, for example, the Persuaders' Thin Line Between Love and Hate, on
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which she achieves something luminous, especially with a wild and passionate harmonica sound dancing around the melody. But on several songs, such as No More "I Love You's," and a ridiculously ornate and pompous remake of A Whiter Shade of Pale, she's simply too numbed to produce much emotional response. And her version of Paul Simon's Something So Right is too stilted for consumption outside a Liza Minnelli supper-club performance.

That said, Lennox does credible covers of the Temptations' 1969 hit, I Can't Get Next to You, and Neil Young's Don't Let It Bring You Down. Just don't expect too much of her excursions into R&B/funk, especially Take Me to the River and Train in Vain. A whiter shade of pale, indeed. A.N.

THROWING MUSES
University
SIRE/REPRISE 945796 (49 min)
Performance: Strong
Recording: Very good

BELLY
King
SIRE/REPRISE 945833 (45 min)
Performance: Artful
Recording: Very good

There's a family-tree connection between these two albums in that Tanya Donelly, the leader of Belly, used to be a member of Throwing Muses, among the earliest (and still the best) of the female-fronted alternative bands. In Bright Yellow Gun, the opening track on the Muses' University, singer Kristin Hersh confesses, "I've got nothing to offer but confusion." Maybe so, but confusion has never sounded so deliriously bracing. The album is like an out-of-control amusement-park ride; you've got no choice but to strap in and go with it, leaning this way and that in response to Hersh's emotional force fields and forward-thrusting tempos. From the controlled fury of Start to the mystical sensuous evocations of Crabtown, "University" is an entrancing record — one that takes great pains to encode life's strangeness in a musical context shot through with excitement and wonder.

On the strength of "King," Belly is getting the same sort of attention claimed by the Breeders last year. Donelly takes a kitchen-sink approach that is artful and interesting; it's not as diamond-hard as Throwing Muses, but the sensibility is just as keen. Some of the tracks here are better if just absorbed than if studied at close range, while others are out-and-out killers. Red unfolds in sections: a sweetly sung, waltz-like threnody, a martial guitar-and-drums-fueled blow-out, and an even faster up-tempo bit that resolves the whole brief, dazzling suite. Donelly's crystalline crystalline soprano cuts through it all, alternately conveying vulnerability and determination on such tracks as Seal My Fate, which moves from a sweet, strummy alterna-folk melody to a lively, full-bore band assault. Overall, Belly gets high marks for creativity so permeate this release that I recommend it as the perfect disc to play for skeptics who think the contemporary jazz scene is on a treadmill. To some extent, it

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If this spawns a Vol. 2 - say, "The Best of Frankie's Beach Movie Years" - then Nietzsche was right: God is dead. S.S.

THE BAD EXAMPLES
Kisses 50c
WATERDOG 9501 (37 min)
Chicago's smartest pop rockers - still the closest thing we have to a homegrown version of Squeeze - return with another fab collection of heartfelt, tuneful musings on issues large and small (and, come to think of it, a more consistent album than anything Squeeze has done in years). Pick hit: A Mindless Pop Song, which is assur-edly anything but. S.S.

500 NATIONS
(Original Motion-Picture Soundtrack)
EPIC 66990 (65 min)
Peter Buffett's impressive score for the TV miniseries 500 Nations succeeds admirably in conjuring up the white man's view of the life and times of Native Americans. It's very Hollywood, and if it recalls Dances with Wolves, that's probably because Buffett worked on that film as well. Excellent sound, too. William Livingstone

ROBYN HITCHCOCK
Invisible Hitchcock
RHINO 71840 (70 min)
Long-overdue reissue of Robyn Hitchcock's equivalent of the Who's "Odds and Odds" - which means it includes a hard-to-find EP plus various rare B-sides and other ephemera, all of it vastly entertaining and sui generis. This guy's so good the British should nationalize him. S.S.

HYPERACTIVE
Inner Strength
HUSNOCK 6002 (40 min)
Brilliantly played and produced punk metal/hiphop-reggae-jazz fusion from an integrated band from the wilds of New Jersey. Think the Red Hot Chili Peppers with a real groove and a better singer - indie rock rarely comes as eclectic, accomplished, or impassioned as this. A major find. [$12 postpaid from MIN Productions, 9 Morton Court, Lawrenceville, NJ 08648.] S.S.

THE MANHATTAN TRANSFER
Toning
ATLANTIC 82661 (52 min)
Another (yawn) covers album, this time centered around Top-40 fare from the Sixties, with special guests like Frankie Valli (who shows up for a Four Seasons remake). Mostly overproduced and charnell-less, with numerous derricks for a desecration of Brian Wilson's sublime God Only Knows, rendered here with all the unctuous show-biz insincerity of Joe Piscopo's Frank Sinatra imitations. S.S.

THE METERS
Anthology: Funkify Your Life
RHINO 71869 (two CD's, 144 min)
All the hits and more by the instrumental combo (including Art Neville of the you-know-who Brothers) that was to New Orleans what Booker T and the MG's were to Memphis - the most influential cats around. Great stuff, assembled with Rhino's usual care. S.S.

MOBY
Everything Is Wrong
ELEKTRA 61701 (47 min)
Because this new album from the overcelebrated dance/trance maven is unusually wide-ranging stylistically (New Age noodeling, a bona fide punk song complete with guitars), some people are hailing it as a breakthrough into a whole new genre. Personally, I think it's more like Mike Oldfield without the laughs. W.L.

MUSICA ANIMA WITH PATRICK STEWART
The Compleat Four Seasons
AMERICAN GRAMAPHONE 801 (51 min)
Including recitations of the poems originally published with Vivaldi's most popular composition was a bad idea. Not only have the poems lost a lot in translation, but the portentous delivery of Patrick Stewart (a.k.a. captain of the Starship You Know What) doesn't help a bit. A recording only trekkies could love. C.A.

MUSIC FOR A BACHELOR'S DEN IN HI-FI
DCC 079 (44 min)
Like the cover says, "15 seductive selections" from the Golden Age (late Fifties, early Sixties) of audiophile make-out music. Among them: Martin Denny's kitschily exotic Quiet Village, Jackie Gleason's nostalgic Theme from "The Honeymooners," and Nelson Riddle's actually quite brilliant Theme from "Route 66." Lots of fun. S.S.

is. But with sax players like Bartz, Joshua Redman, James Carter, and Ivo Perlman around, there is indeed light at the end of the evolutionary tunnel. C.A.

ERROLL GARNER
Gershwin/Gershwin and Kern
TELARCHIVE R3337 (76 min)
Performance: Glorious Garner Recording: Ears will be pleased

When Erroll Garner surfaced in the Forties he didn't sound like anyone who had come before him. The Garner style still creeps up in the playing of the current generation, but no one has managed to recapture the full flavor Garner's as a prolific recording artist whose extraordinary creativity was refreshingly spontaneous: when he sat down at the piano (usually on a stack of telephone directories) the magic poured forth with such ease and precision that second takes were rarely needed.

A new Telarchive CD combines two albums previously released on Garner's own Octave label: "Gershwin and Kern" and "Magician." According to the notes, these tracks date back to the Seventies (Garner died in 1977), but something tells me that the Gershwin/Kern tribute was made in the previous decade. That, of course, is of little consequence to the average listener. What really matters is that these recordings are once again available, that the CD is filled to the brim, and that careful attention has been paid to the sound quality. C.A.

DIZZY GILLESPIE
The Complete RCA Victor Recordings RCA/BLUEBIRD 66528 (two CD's, 129 min)
Performance: Seminal Recording: Okay

This collection of seminal bebop belongs in every jazz record library, and I envy anyone hearing it for the first time. In addition to material recorded under Gillespie's name in the late Forties (big band as well as small group), it also offers delightful examples of his embryonic work of the late Thirties with Lionel Hampton and Teddy Hill, plus a 1949 Meconome All Stars session on which Miles Davis and Fats Navarro join Gillespie in the trumpet section (Charlie Parker and Lennie Tristano are also on hand). My own favorites among these recordings are George Russell's "Cubano Be" and "Cubano Bop," actually a groundbreaking two-part work for big band that sought and found a common element in Chano Pozo's Cuban chants and Stravinsky's "Rite of Spring." A young Johnny Hartman's Perry

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JOE HENDON
Double Rainbow: The Music of Antonio Carlos Jobim
VERVE 527 222 (63 min)
Performance: Bossa with brains
Recording: Excellent

The news that I find this collection of Antonio Carlos Jobim songs the most satisfying of Joe Henderson’s three Verve albums should be tempered by the news that I found his earlier tributes to Billy Strayhorn and Miles Davis lacking in vitality (a minority opinion, to be sure). The dilemma facing the tenor saxophonist and his producers is that (apparently) he no longer writes, and garden-variety standards fail to provide him with as much gristle as his own structurally inventive originals used to. Although composer homages like this one strike me as only a short-term solution, I have to admit that Henderson and Jobim prove to be a surprisingly good match. Bossa nova can be bland, but Henderson avoids the trap by digging into those Brazilian rhythms instead of attempting to glide over them the way most jazz soloists do.

Henderson’s solos are both lifting and brainy, and this material allows him to display his lovely flute-like altissimo to extremely good advantage (as might be expected, there are token nods to Stan Getz). There are two different rhythm sections here; the one with co-producer Oscar Castro-Neves on guitar may be more idiomatically suited to the task at hand, but Henderson taps a deeper vein of lyricism in the company of Herbie Hancock, Christian McBride, and Jack DeJohnette.

NICHOLAS PAYTON
From This Moment
VERVE 527 073 (67 min)
Performance: Remember the name
Recording: Good

New Orleans’s Nicholas Payton, twenty-one, is the latest neo-bopster to find a home at a major label courtesy of Wynton Marsalis. As with so many of today’s new stars, the big spotlight may be catching him prematurely; he has yet to find his own style, and there are rough spots here and there on this debut album. But “From This Moment” is a fine start nevertheless and bodes very well indeed. Payton’s varied influences give him prepossessing versatility; there are flashes of Miles and Dizzy, but he can also go farther back, as on Taking a Chance on Love, which he gives a decidedly Roy Eldridge-ish treatment that brings out the Garner in pianist Mulgrew Miller. The youthful sextet features guitarist Mark Whitfield and vibist Monté Croft, with Miller steering a rhythm section completed by bassist Reginald Veal and drummer Lewis Nash. Seven of the twelve tracks are originals, revealing Payton’s considerable talent in that area as well. Reserve a place for him. C.A.

Payton: a fine start

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BARRIOS: Music for Guitar
David Russell
TELARC 80373 (70 min)
Performance: Charming
Recording: Excellent

Wonderful "primitive" art — I'm thinking of the Frenchman Henri Rousseau or the American Grandma Moses — is rarer in music than in the visual arts, but it occurs. Agustín Barrios Mangoré, born in Paraguay in 1885, was a guitar virtuoso who spent his life touring in Latin America and creating a body of charming and idiomatic music that has recently had a big revival. The charm and the romantic qualities are made up in about equal measures of naïveté and sophistication. Barrios wrote this music for himself to play, and it was meant to please and astonish. It does both.

Glasgow is about as far as you can get from Paraguay and still be on the same planet, but these grateful and elegant little pieces are neatly turned by David Russell, who, indeed, hails from Scotland. His technical brilliance is breathtaking, and there is a certain reserve in his playing that gives these pieces a rather Classical feel and keeps the kitsch from the door. Even without extracting the last ounce of sentiment and showmanship, he makes a good case for this music.

E.S.

BEETHOVEN: Piano Sonatas No. 15 ("Pastorale"), No. 17 ("The Tempest"), and No. 26 ("Les Adieux")
Gerhard Oppitz
RCA 61969 (65 min)
Performance: Bracing
Recording: Vivid

We've already had complete recordings of the piano music of Brahms and Grieg from Gerhard Oppitz, and this new disc looks like the start of an integral survey of the Beethoven sonatas. If so, it may well prove to be a stimulating one. While the Oppitz recordings that I've heard in the past have struck me as the work of an unquestionably skilled player who didn't bring much to the music in the way of fresh illumination or enrichment, he exhibits an altogether different level of involvement in his Beethoven. There are humor and fantasy in the "Pastorale," brilliance to burn in "The Tempest," and an uncommonly successful combination of these qualities in the way he conveys the imagery of "Les Adieux."

The impact of this hour-plus with Beethoven is cumulatively bracing. Oppitz seems to be having the time of his life immersed in music he really cares about and understands. The vivid recording, occasionally tending toward brittleness, seems perfectly matched to both the exuberance and the depth of these provocative, richly enjoyable performances.

R.F.

SHOSTAKOVICH: String Quartet No. 3
Lafayette String Quartet
DORIAN 90201 (72 min)
Performance: Caring
Recording: Very good

Judging from the way they carry off this cunningly chosen all-Russian program, I'd say that the four young women who make up the Lafayette String Quartet — currently based in Victoria, British Columbia — will bear careful watching over the next few years. The cello opening of Borodin's popular D Major Quartet sounds a bit tentative for my taste, but the performance gains strength and cohesion as it moves along through the sprightly scherzo, the ever-popular nocturne, and a neatly turned and spirited finale. The Lafayette players negotiate the complex rhythms and colors of the aoric, even gnomic 1914 Stravinsky pieces with aplomb and gusto.

The Shostakovich Third Quartet, from 1946, provides the greatest substance in the program. Its five movements run the gamut from in-your-face clownering to unrelenting tragedy, with echoes of the Seventh and Eighth Symphonies as well as of the "dances of death" elements in the E Minor Piano Trio. The mournful quasi-passacaglia fourth movement is one of the composer's major chamber-music achievements. The whole work is performed here with deep compassion and understanding. Add in the first-rate sonics (from the Troy, New York, Savings Bank Music Hall), and to me this CD is worth its weight in gold.

D.H.
and this latest installment has turned out over a three-year period (1990-1992), orchestration of the Op. 25 Piano Quartet). Siderably less garish than Schoenberg's or-colorful terms, it does work (and it's con-finally pianistic original, but, on its own
can really live with.
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BRAHMS: Symphony No. 4; Handel Variations (orch. Rubbra)
Cleveland Orchestra; Antikemazy
LONDON 436 853 (71 min)
Performance: Heartwarming
Recording: Exemplary

The recording of Vladimir Ashkenazy's
Cleveland Brahms cycle was stretched out over a three-year period (1990-1992), and this latest installment has turned out the best. He has the tempos just right in the Fourth Symphony, beginning at the very first bars, where he communicates a fine sense of lift and momentum. There is no laboring in the denser portions of the first-movement development, and there's a splendid work-up to the movement's climactic ending. The Cleveland strings are in gorgeous form in the slow movement, and its ensemble woodwind passages have a fine bite and body. The scherzo could use a touch more pizzazz, but it is by no means sleepy. The passacaglia finale packs a tremendous wallop. Of the various digital recordings of the Brahms Fourth, this is one I can really live with.

The 1938 orchestration by the British composer Edmund Rubbra of Brahms's Op. 24 Variations and Fugue on a Theme by Handel will sound more than a bit outre' to those who have grown up on the mar-velously pianistic original, but, on its own colorful terms, it does work (and it's considerably less garish than Schenone's or-orchestration of the Op. 25 Piano Quartet). Ashkenazy has recorded the Handel Variations in the original, and that knowledge in-forms his treatment of the orchestral ver-sion. This is a fine disc — go for it! R.F.

CHOPIN: The Four Ballades; Two Waltzes; Nocturne in F Major; Three Mazurkas; Two Etudes
Murray Perahia (piano)
Sony 53284 (67 min)
Performance: Excellent
Recording: Superb

After spending two years or so undergoing treatment and surgery for an injury to his right hand, Murray Perahia has resumed his recording activity for Sony with a stunning Chopin collection. The dozen pieces on this disc may well add up to this pianist's finest hour in any recorded repertory so far. He seems to achieve a new level of vitality in embracing the sheer physicality of the music — its rich colors and rhythmic inventiveness — as well as its more subtle expressive nuances.

The big items here are the four ballades, each in its way a concise, self-contained drama. Perahia responds with a poetic fire as well attuned to this Romantically evoca-tive music as Classical poise was to his per-formances of the Mozart concertos. Indeed, it is because that Classical poise is very much operative here that the freedom in his playing seems to enhance the music's innate elegance as well as its drama. The gen-erally slowish — but useful — tempo of the (n)ebuto is simply part of the language here — nothing more and nothing less than what a phrase demands in order to be heard in its own voice.

The ballades are followed with even more concise (I can't imagine calling them "little") miracles of perfection in the form of two "grand waltzes" (the Valse Brillante in E-flat Major, Op. 18, and the Waltz in A-flat Major, Op. 42), the F Major Nocturne, Op. 15, No. 1; three mazurkas (Op. 70, No. 3, in F Minor, Op. 17, No. 4, in A Minor, Op. 33, No. 2, in D Major); and two of the Op. 26 Etudes (No. 3, in E Major, and the sparkling No. 4, in C-Sharp Minor). All grandly sustain the level of interpretive inspiration and performing brilliance already noted; it is all sorcery, and the distinguished recording does full justice to it.

DEBUSSY: Images for Orchestra
ELGAR: Enigma Variations
Berlin Philharmonic; Levine
SONY 53284 (67 min)
Performance: Elegant
Recording: Gorgeous

An oddball repertoire pairing, this one! But when you get down to it, mixing mature Debussy with Elgar's first masterpiece is no stranger than Debussy's own combination, in the Images pour Orchestre, of a Spanish-flavored masterpiece (Iberia) with two fascinating but lesser pieces subtly imbued with English and French folk elements (Gigues and Rondes de Printemps, respectively). And the idea of the Berlin Philharmonic performing this quintessentially French and British music adds yet another touch of incongruity — in the event, a bold and delightful touch!

In terms of James Levine's interpretations, Gigues floats out of the loudspeakers with as transparent a texture and as clean a line as any Debussy recording I have heard in recent years, and those same qualities permeate the rest of the Images, especially the slow movement of Iberia. But the outer movements of Iberia are lacking in rhythmic impetus and tension, and while there's lots of atmosphere in the festive third movement, I miss the untrammeled jubilation that should mark its final pages.

There are many satisfying things in the Elgar, notably the fine sostenuto line in the famous "Nimrod" section (Variation IX) and the apt gauging of its crucial climactic point — a hurdle for almost all interpreters. The wonderfully blustery, self-celebrating finale doesn't quite come off, however. That cavil aside, the sound of this live re-cording in Berlin's Philharmonic hall is of demonstration quality, especially in the De-bussy. There is applause after the end of the Elgar. D.H.

MOZART: Serenade No. 13 ("Eine Kleine Nachtmusik"); Concerto for Flute and Harp (K. 299); Sinfonia Concertante for Violin and Viola (K. 364)
Soloists: Cleveland Orchestra, Dolhanzy
LONDON 443 175 (78 min)
Performance: Elegant
Recording: Consistently fine

All of our orchestras give their principal players, and the concertmasters in particular, opportunities to perform as concerto soloists, but few provide opportunities for them to record in such roles. The Cleveland Orchestra, which became one of the notable exceptions early in George Szell's twenty-four-year tenure, continues that laudable tradition here, and with a good deal of poignancy.

In a warmly affectionate note, conductor Christoph von Dohnanyi advises us that Daniel Majeske, who died of cancer in November 1993, had been a member of the Cleveland Orchestra for thirty-eight years and its concertmaster for nearly twenty-five — longer than any of his predecessors. The sober, darkly lit 1991 recording of the Sinfonia Concertante, with the orchestra's principal violinist, Robert Vernon, as co-soloist with Majeske, is a memorial of real substance.

Fittingly, it is coupled here with another double concerto, for flute and harp, in which principals of the orchestra are again soloists — in this case the flutist Joshua Smith and the harpist Lisa Wellbaum. The slighter but engaging work is agreeably set forth, and a stylish account of the always welcome Eine Kleine Nachtmusik serenade at the beginning of the generously filled disc makes it the equivalent of a full concerto program. Dohnanyi has the orchestra sounding pretty big and bluff for such ma-terial, but elegant nonetheless, and the sound quality is consistently fine. R.F.

RIMSKY-KORSAKOV: Sadko
Soloists: Kirov Opera Chorus and Orchestra, Gergiev
PHILIPS 442 138 (three CD's, 172 min)
Performance: Impelling
Recording: Very good

Recorded live, this performance of Rimsky-Korsakov's 1890's operatic fantasy — a real melodrama — is distinguished throughout by a taut energy and intensity,
properties as much of the score itself as of this realization, that make it nearly irresistible. The libretto is a typical fairy tale, taking Sadko, in a quest for fame and fortune, away from his wife and native city and into the Kingdom of the Sea and the winning arms of the Sea Princess, then back to terra firma, domestic happiness, and popular recognition. The music, now highly dramatic, now seductively lyrical, varies in its efficacy, often being truly moving but sometimes a little better than a circus-band, yet Rimsky's melodic gifts and telling orchestration always carry it along.

The performance is top-notch. The large chorus, which has a major role in the opera, sings with both fervor and conviction, its music rousing and expressively appealing by turns. The orchestra is especially noteworthy, crisp in attack, soaring in line, and vigorously theatrical. Always in sure control, conductor Valery Gergiev obviously understands and admires the work.

The soloists are similarly dedicated. Vladimir Galusin is commendable as Sadko, a great role that amounts to a test of vocal prowess, using his stalwart tenor to fine effect. As Valkhova, the Sea Princess, Valentina Tsoi gives a true portrait of one of the most haunting melodies in the opera; her clear, floating soprano enhances them. Sadko's wife, Lyubava, is movingly sung by mezzo-soprano Marianna Tarassova. The Venetian Merchant of baritone Alexander Gergalov and the Indian Merchant of tenor Gegam Grigorian provide arresting cameos in Tableau IV (the celebrated Song of India's original context). Sergei Alexashkin's full-bodied bass sonorously portrays the powerful Sea King.

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Schumann's original 1841 version of the Symphony No. 4 is the major justification for yet another recording of these familiar masterworks. It was actually the second of his canonical four symphonies in order of composition, but he took it into his head a decade later to revise the orchestration, and to some degree the musical content as well. As played here, the original has a much more transparent texture, free of the woodwind doublings that have tended to make the music sound beefy. The transitional material linking the slow introduction to the main body of the first movement is quite different from what we're used to, as are the initial pages of the finale, where the reprise of the militant theme from the first movement is given a single blunt proclamation.

Conductor Nikolaus Harnoncourt stresses the lyrical aspects of both the "Rhenish" and the Fourth Symphony, with decided legato emphasis throughout and a soft-pedaling of the rhythmic figuration. There is no high drama here, not even in the so-called Cathedral Scene of the "Rhenish." This is Schumann with a light hand, and in its own way it's refreshing.

**SHOSTAKOVICH: Symphony No. 11**

("The Year 1905")

Vienna Symphony, Inbal
DENON 78920 (52 min)
Performance: Exceptional
Recording: Impressive

A chilling wide-screen sonic picture of the savage Tsarist repression of the January 1905 protest gathering of workers and citizens before the St. Petersburg Winter Palace, the Shostakovich Symphony No. 11 was composed when memories of the Soviet purdowm of a similar protest in Hungary were still fresh, which has led recent commentators to infer a subtext embodying the composer's own protest against tyranny. Certainly that element comes through in the words of the revolutionary songs that thread their way through all four movements.

I have found Elihu Inbal's previous Shostakovich performances from Vienna just a cut below the best of the competition, but in No. 11 he comes out very near the top for my money, thanks among other things to an exceptionally vivid recording. His reading of the work is tauter than usual, but not at the expense of atmosphere or drama. The raw terror in the second movement, which depicts the massacre, is singularly well conveyed here; the orchestral ditty, yet Rimsky's melodic gifts and telling orchestration always carry it along.

**SCHUMANN: Symphonies No. 3**

("Rhenish") and No. 4
Chamber Orchestra of Europe, Hamoncourt
TELDEC 90867 (57 min)
Performance: Refreshing
Recording: Good

His reading of the work is tauter than usual, but in No. 11 he elicits a sensitive, surefooted performance, of course, but the principal to bring to the piece all the wit and passion one could wish for. Tenor Jon Garrison, as the anti-hero Tom Rakewell, milks the part's humorous pomposity in the early acts, yet he also brings out genuine pathos in the finale in Bedlam. Jayne West, as his sweetheart Anne Truelove, sings the famous first-act monologue, "No word from Tom," with a shimmering, silvery soprano tone that is nicely captured by the clear, unobtrusive recording. No musician has a greater claim to the definitive Stravinsky interpreter than Robert Craft — no guarantee of a good performance, of course, but here he elicits a sensitive, surefooted performance from the Orchestra of St. Luke's.

**WAGNER: Lohengrin**

Jerusalem, Studer, Meier, Moll, Welker, others;
Vienna State Opera Chorus;
Vienna Philharmonic Orchestra, Abbado
DEUTSCHE GRAMMOPHON 437 808 (three CD's. 211 min)
Performance: Very good
Recording: Mostly good

The Vienna Philharmonic gives conductor Claudio Abbado glistening sound and tonal refinement throughout this recording. His approach to the famous Act I Prelude is less impressive for its transcendent luminosity than for a transparency that reveals Wagner's contrapuntal wonders, and there is an urgency to his reading that I welcome in this opera, especially in the Bridal Chorus, where the vocal textures are not sufficiently clarified.

Tenor Siegfried Jerusalem is a first-rate Lohengrin, eloquent in his lyric scenes, where he delivers his long phrases with fervor and poetic insight, though his voice itself lacks sensuous appeal. After an acceptable but not really distinguished first act, soprano Cheryl Studer's Elsa gathers strength and comes completely into her own in Act III. In the second act, the innocence she projects contrasts effectively with the britting
the performance gets off to a ster-
ing start with the resonant and clearly fo-
cused baritone of Andreas Schmidt as the
Herald and the opening lines of the volumi-
ous and always dependable bass Kurt
Moll (King Heinrich). These artists main-
tain their excellence later on, though Moll
is denied sufficient presence in the prob-
lematic Act II Finale. The cast's weak ele-
ments is the Telramund of baritone Hartmut
Welker; a seasoned artist, he does no seri-
ously venomous Ortrud.

Tones of mezzo-soprano Waltraud Meier's
broad voice are not well served by those of
Moll (King Heinrich). These artists main-
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**QUICK FIXES**

**BACH: Flute Sonatas**

Galway; Moll; Cunningham
RCA VICTOR 62555 (75 min)

Both kinds of Bach flute sonatas are here, the three for violin and keyboard with full written-out parts and the three for solo flute with keyboard accompaniments improvised over a bass. Flutist James Galway is no Baroque specialist, but, genial as always, he strikes a compromise between a pure period-style performance and a modern virtuoso reading, putting everything on the same lively even keel. The performance is reverent, but to me it lacks Galway's usual personal flair without offering quite enough go-for-Baroque to compensate.

**BEETHOVEN: Coriolan Overture; Quartet No. 11 (arr. Mahler); Symphony No. 7**

Indianapolis Symphony, Leppard
KOSS 2215 (72 min)

The overture and symphony receive decent but undistinguished readings under Raymond Leppard — no competition for either the big star conductors or the best of the original-instrumentists crowd. The acoustic surround is a bit tight, but the sound is clean. Mahler's string-orchestra expansion of the Op. 95 quartet fares better acoustically, but Yuri Bashmet's Moscow Soloists on RCA offer a more malleable and vital interpretation.

**DEBUSSY: Violin Sonata**

Zukerman; Neikrug
RCA 62697 (68 min)

It may be that Pinchas Zukerman and his sympathetic keyboard collaborator, Marc Neikrug, have deliberately chosen an approach more austere than the norm for these works, but I miss the characteristic warmth, the sheer richness of tone, the general sense of commitment and eagerness to communicate that have been Zukerman's hallmarks — qualities I'd have thought especially apposite to these sonatas.

**SCHUMANN: Piano Concerto; Violin Concerto**

Argerich, Kremer; Chamber Orchestra of Europe, Hamburger
TELEDEC 90696 (63 min)

Pianist Martha Argerich is in her best form here, with not only her usual electric virtuosity and explosive playing at the climaxes, but also an eloquent, deeply musical rhythmic elasticity that brings out all the romantic impetuosity of Schumann's Piano Concerto. The Violin Concerto does not fare so well. Written in rough, broad strokes, it seems even less impressive here than usual because Gidon Kremer and Nikolaus Harnoncourt inflate it pretentiously, offering weightiness in lieu of nuance.

**MIKHAIL KAZAKEVICH**

Plays Rachmaninoff, Brahms, Bach, Honegger, Berg
CONIFER 51235 (63 min)

The thirty-six-year-old expatriate Russian pianist shows a good deal of creativity in this program, which builds on both the contrasts and the connections between Rachmaninoff's Second Piano Sonata, four Brahms intermezzos, a Bach prelude and fugue, Honegger's Prélude, Aria and Fugue on the Name BACH, and Berg's Sonata, Op. 1. While it is not all satisfying — the Bach seems more than a little wayward — the performances suggest an imaginative musical mind as well as gifted hands. The recorded sound is exemplary in its realism.

**SYLVIA McNAIR**

The Echoing Air: Music of Henry Purcell
Academy of Ancient Music, Hogwood
PHILIPS 446 081 (62 min)

Though Purcell's music doesn't always export well, this collection of short vocal and instrumental works, including selections from The Fairy Queen, is winningly arranged and performed. Soprano Sylvia McNair's lush, polished singing displays intelligence and a discreet sense of expressivity, but conductor Christopher Hogwood sometimes fails to give the music the folksy flexibility and unbuttoned high spirits it needs.

**LA NEF**

Music for Joan the Mad
DORIAN 80228 (66 min)

A theater piece by the Canadian early music group La Nef, "Music for Joan the Mad" contains moody vocal and instrumental music of the Renaissance. It is an authentic tribute to the queen of Spain known as Juana la Loca (1479-1555), driven mad by excessive love for her husband, Philip the Handsome. Excellent.

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THE HIGH END

BY PETER W. MITCHELL

The Sound of Dolby AC-3

In the three years since Dolby Stereo Digital (DSD) soundtracks arrived in theaters, their sound has been controversial. It can be impressively clear, vivid, and spectacular. But to audio critics who were familiar with the sound of the best six-channel 70mm films, DSD soundtracks often seemed aggressive and over-bright.

DSD uses Dolby's AC-3 system of digital coding. AC-3 encodes 5.1 channels of surround sound into a compressed bit stream with a total data rate, in DSD, of only 320 kilobits per second. Since CD coding has a data rate of 706 kilobits per second per channel, 5.1 channels of CD code would require more than 3.5 megabits per second. AC-3 shrinks that rate by a factor of eleven. Can such aggressive data reduction work without compromising the sound?

Based on critical listening tests at Lucasfilm's Skywalker Ranch, the HDTV Grand Alliance chose Dolby AC-3 as the North American standard for the audio portion of digital high-definition television. That is a point in AC-3's favor, although test participants admitted privately that neither AC-3 nor the other candidates reproduced the test signals flawlessly. Imperfections were also heard during European HDTV tests in London and Berlin. So when Pioneer announced plans to include AC-3 soundtracks on laserdiscs, high-end critics were skeptical.

A year ago, Dolby invited me to an AC-3 mastering session in Hollywood where I A/B'd the AC-3 output against a multichannel master recording. Most sounds were identical, but in some transient sounds the AC-3 coding added a bright, metallic edge.

The competing DTS system added fuel to the controversy. First the developers of DTS demonstrated to audio critics that theatrical DTS playback was indistinguishable from a discrete multichannel master tape. Then DTS developed "Coherent Acoustics" coding for laserdiscs. Its data rate is 240 kilobits per second per channel, so a six-channel DTS signal has a total data rate of 1.44 megabits per second, the same as the CD-format stereo soundtrack on a laserdisc.

When several audio critics compared DTS with a multichannel master tape, they found the sound virtually identical. And when I heard a DTS soundtrack in a high-quality home system, it sounded better (with a more realistic sense of surrounding ambience) than the same movie in a first-rate Hollywood theater.

Since laserdiscs are already issued in multiple editions (pan-and-scan, widescreen, THX), they could also be issued in an audiophile version with a DTS soundtrack replacing the stereo digital soundtrack. Then AC-3 and DTS could compete directly in the marketplace, and consumers could decide for themselves which technology they prefer.

Last summer Dolby's Roger Dressler pointed out that critics had heard only the theatrical version of AC-3, which operates at 320 kilobits per second. It was rushed to theaters in 1992 to compete with another system, Cinema Digital Sound (CDS), which has since disappeared from the scene.

Meanwhile, Dolby engineers continued to develop a higher-performance "consumer" version of AC-3 for use in the more revealing environment of the home theater. That is the version of AC-3 being used for laserdiscs, and it will be the standard for HDTV, cable, and the Toshiba/Time Warner digital videodisc (DVD) as well. It uses a more sophisticated and flexible encoding algorithm and operates at 384 kilobits per second.

How good is the consumer version of AC-3? When the first laserdiscs with AC-3 arrived in February, I participated in a three-way comparison between a laserdisc with AC-3 coding, a laserdisc with DTS coding, and a digital tape. The laserdiscs were demo discs that contained excerpts from recent movies; both included the same excerpt from The Mask (the popular Jim Carrey film). The tape was a digital copy, in Tascam DA-88 format, of the 5.1-channel master tape that the DTS demo disc was made from. So we could compare the same sounds in DTS, AC-3, and uncompressed formats.

We began by comparing the six-channel tape with the DTS disc. They sounded identical — no surprise, since both were copies of the same source, and DTS coding is essentially transparent. Conceivably we might have heard a difference between the DA converters in the Tascam DA-88 and those in the DTS decoder, but we did not.

When we compared the AC-3 disc, we heard occasional differences, but they were quite small. In most respects the AC-3 playback sounded identical to the uncompressed tape. Two well-known critics who have been particularly skeptical about AC-3 were impressed by this excellent result. I searched for the metallic edginess that I had heard in previous AC-3 recordings, but it just wasn't there. The audible differences that did emerge were of two types:

1. Loud high-frequency transients were very slightly louder and brighter in the AC-3 playback than in the discrete tape. That may be a mild form of the transient distortion that I noticed last year. But it was noticeable in discrete comparison with the tape. By itself, the AC-3 version sounded fine.

2. Naturally complex sounds, such as the sound of violins, had a smooth, finely textured character on the tape but a subtly grainier texture on the AC-3 disc. The difference was noticeable only in direct comparison with the tape. By itself, the AC-3 version sounded fine.

Dressler's promise has been validated: AC-3 on laserdisc sounds much better than any AC-3 playback that I have heard in the past. If home theater is important to you, put an AC-3 decoder on your shopping list. As a bonus, the improved sound of the consumer version of AC-3 will gradually be added to the cinema version.

The difference in sound between Dolby AC-3 and DTS is now so small that there may be no market for DTS laserdiscs. The real future of DTS coding may be in multichannel CD's, providing superb discrete-channel sound for music. You wouldn't need to buy a new CD player; just feed the digital output from your existing player to a DTS decoder. I'm thrilled at the prospect.

When Pioneer announced plans to include AC-3 soundtracks on laserdiscs, some critics were skeptical.
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